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Suggestions

FOR THE LAYOUT AND CONSTRUCTION OF SCHOOLS IN ONTARIO

THIRD EDITION

JUNE 1962

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FOREWORD

Third Edition

of

SUGGESTIONS FOR THE LAYOUT AND CONSTRUCTION

OF SCHOOLS IN ONTARIO

The Suggestions have been compiled by the Advisory Committee on School Planning with the help and advice of board members, school officials, teachers, architects, engineers, contractors, specialists and other interested persons. The Suggestions are intended as a guide for those concerned with the construction of schools.

The Advisory Committee on School Planning was established by the Ontario Association of Architects when the Ontario Department of Education suggested the desirability of forming a liaison group for the purpose of facilitating and improving the design and construction of schools. The publication of the Suggestions has been the primary consideration of the Committee. The first edition of the Suggestions appeared in 1948. The second edition was published in 1955. Two supplements were issued in 1961.

The 1962 or third edition of the Suggestions includes numerous minor revisions and more than a dozen new sections or items. As the membership of the Advisory Committee on School Planning includes representatives of the Department of Education and members of the Ontario Association of Architects, ideas concerning school buildings have been received from many sources. Contributions have been received from international bodies. Some of the material appearing in the Suggestions is the outcome of controlled experimentation. This phase of the Committee's activity continues to broaden.

The Suggestions are distributed to Ontario school inspectors and architects. They are available to individuals and groups upon request. The distribution of copies of the Suggestions has extended to all Provinces in Canada, to most States in the U.S.A. and to a number of countries around the world.

No attempt has been made to establish building codes. Architectural and engineering services together with Provincial and Municipal Codes and Regulations ensure safe and proper buildings.

The help ahd advice of individuals and groups are gratefully acknowledged. The invitation to individuals to submit contributions for consideration in future editions of this publication is again given.

DEPARTMENT PUBLICATIONS CONCERNING SCHOOL BUILDINGS

The School House, Its Architecture	1876 *
Plans for Rural Schools	1909 *
Interim Report on Elementary Schools	1945 *

The Committee on Planning, Construction and Equipment of Schools in Ontario

Ontario School Building Guide	1947 *
Suggestions for the Layout and Construction of Schools in Ontario	1948 *
Suggestions for the Layout and Construction of Schools in Ontario (2nd ed.)	1955 *
Suggestions for the Layout and Construction of Schools in Ontario (3rd. ed.)	1962

* out of print

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PROCEDURE

1. BUILDING PROPOSAL

Before commitments of any kind are made in connection with a building project, the board should submit a building proposal to the Department of Education.

a. Proposals for elementary schools are made to the Superintendent of Elementary Education by the elementary school inspector on behalf of the board.

b. Proposals for secondary schools are made by the secretary of the board to the Superintendent of Secondary Education.

2. APPROVAL OF PROPOSAL

After the proposal has been approved by the Department of Education, and when finances to meet the estimated cost of the project are assured, the board may incur expenses, professional or otherwise, for the project as approved. It should be noted that any expense incurred prior to the issue of approval is not considered as an approvable expenditure by the Department of Education.

3. SELECTION OF AN ARCHITECT

School design and construction is a highly specialized branch of architecture. Boards are strongly recommended to retain the services of an experienced school architect. The Department of Education does not make recommendations regarding the selection of an architect. The following considerations may assist Boards in choosing an architect:

a. the length of the architect's experience in active architectural work;

b. visits by boards to schools built by architects, and discussions with the boards and school officials concerned.

4. AGREEMENT BETWEEN THE BOARD AND THE ARCHITECT

Once a decision with respect to the architect has been made, the board should enter into an agreement for professional service with the architect selected. Full architectural service including engineering and supervision is recommended.

Such service is expected to guarantee the best use of space, together with a sound structure with well designed utilities for the efficient use and economical maintenance of the building.

Fees for such professional services (usually 6% of the building contract) are a legitimate charge against building costs.

There should be a clear understanding between the board and the architect as to the extent of services and the amount of fees involved. The standard form between architect and client should be used. Professional practice forbids architects:

a. to submit drawings or models before their services have been retained and an agreement has been signed;

4. AGREEMENT BETWEEN THE BOARD AND THE ARCHITECT (Cont'd)

b. to enter into competition with one another unless the competition is conducted under the regulations of the Royal Architectural Institute of Canada;

c. to accept a commission where an agreement has been made with another architect until the board has terminated the agreement with the first architect.

5. EXTENT OF ARCHITECTURAL SERVICES

Complete architectural service includes the following:

a. assisting the board in the selection of a site;

b. advising the board whether the cost of building accommodation as required by the board and approved by the Department for legislative grant purposes is likely to be within the appropriation;

c. preparing sketch plans to meet with the approval of the board, the Department of Education, the Department of Health and the Ontario Fire Marshall;

d. preparing final working and detailed drawings and specifications to meet with the approval of the board, the Department of Education, the Department of Health and the Ontario Fire Marshall;

e. providing any necessary professional engineering services;

f. advising the board on the calling of tenders;

g. preparing the contract documents and advising the board on the awarding of the contract, and making arrangements for bonding the contractor;

h. giving periodic inspection and general supervision of the building;

i. certifying the payments due to the contractor;

j. turning the completed building over to the board.

If the board wishes continuous supervision of the building, it becomes necessary to appoint a clerk of the works. A clerk of works is selected by the board and the architect, paid by the board, and is directly responsible to the architect.

6. INFORMATION REQUIRED BY THE ARCHITECT

In order to render his best services, the architect requires the following assurances:

a. that the board has received from the Department tentative approval for grant purposes of the project, including a list of the facilities approved;

b. that the board in the case of public schools has assurance from the municipal council that the Ontario Municipal Board will approve a debenture issue to cover the estimated cost;

c. that the board in the case of public schools has made arrangements with the municipal council for the payment of any necessary fees or expenses incurred prior to debentures being issued.

d. The architect should also be provided with the following information:

6. INFORMATION REQUIRED BY THE ARCHITECT (Cont'd)

(1) detailed information regarding the installation of built-in equipment and about such utilities as gas, water and power. (This is not a serious factor except in vocational schools where such information should be furnished by the Principal. In cases where the Principal has not been appointed, Departmental officials may be of some assistance.)

(2) a survey and topographic plan of the site. (The board is obliged to retain and pay an Ontario Land Surveyor for this purpose and to furnish the information to the architect prior to the preparation of sketch plans.)

(3) a soil bearing survey by a firm especially equipped for this work. (This should be arranged by the board.)

7. EXTENT OF BUILDING CONTRACT

The building contract usually includes provision for the following items:

a. the completed building;

b. grading, aprons, parking areas, hard-surface playing areas, roadways and walks in the immediate vicinity of the building and to the street. Landscaping and the development of playing fields and fencing may be included but the expenditures for these should be shown separately when final approval for grant purposes is requested;

c. all mechanical and electrical equipment in operating order, including clocks, fixtures, and alarm systems;

d. bicycle racks;

e. a flagpole;

f. supply, connection, and payment of fees for the installation, testing and approval of all utilities. In the absence of a municipal water supply or sewage disposal system, an assured independent water supply (adequate for school operating conditions) and sewage disposal system should be included;

g. all built-in equipment, including cupboards, cabinets, counters, lockers, mirrors, dispensers and general fire-fighting apparatus; utilities such as water, gas, power, drains, and their connection to instructional furniture and equipment; (Standard school furniture and equipment may be purchased directly by the board.)

h. keys;

i. blinds and screens, if required by the board;

j. the protection of the work during progress of construction, including fire and public liability insurance.

Further information in this regard may be obtained from the architect.

8. SKETCH PLANS

Sketch plans should be prepared in accordance with the proposal which has been given tentative approval for grant purposes by the Department of Education.

8. SKETCH PLANS (Cont'd)

The sketch plans should illustrate the accommodation and facilities as follows:

a. the site plan to stated scale, showing the size, shape, general topographical conditions and points of compass; location of the proposed building on the site, existing structures, possible future additions, playground areas, adjacent streets, lanes, highways, sidewalks, drives, bus parking and easements;

b. floor plans to scale, not less than 1/16" to the foot, showing location and purpose of all rooms, shops, corridors, stairs, washrooms, offices, boiler room. These spaces should be named for reference purposes;

c. location of doors, windows, sanitary fixtures, wardrobes or lockers.

d. ceiling height, and outside grades, with sufficient indication of materials to permit rating by the Fire Marshall;

e. sections as necessary to explain any conditions not made clear in the other drawings;

f. proposed water supply and sewage disposal facilities when public utilities are not available;

g. where additions or remodelling are involved, the arrangement and present use of all spaces on each floor of the existing school, so that the net loss or gain in accommodation can be readily ascertained;

h. an estimate of the cost, including all fixed equipment. If this estimate is not reasonably within the limits of the amount tentatively approved for grant purposes, it may be necessary for the board to reconsider the building programme and to make such adjustments as may be expedient.

Note: The Department retains for record purposes a copy of the sketch plans as approved for grant purposes.

9. FINAL PLANS AND SPECIFICATIONS

Complete working drawings and specifications (architectural, structural, electrical and mechanical) covering the site, all phases of construction, and all fixed equipment should be prepared in accordance with the sketch plans which have been approved for grant purposes by the Department.

When these final plans have been approved by the board, one set should be submitted to the Department for approval for grant purposes, and one set to the Ontario Fire Marshal for approval.

The final plans and specifications should include complete information covering the entire project to the point where the board and the contractor have a clear understanding of the extent of the proposed contract.

Owing to the variety of school building types and methods of construction, it is impossible to enumerate all the items which should be included in the final plans. Although not complete, the following list may serve as a guide:

9. FINAL PLANS AND SPECIFICATIONS (Cont'd)

a. Site Plan

1. site plan to scale showing points of compass, location, size and shape of the entire site;

2. block plan of new building, existing building, and any possible future additions, all accurately located;

3. finished contours, with finished grades at building and elevation of the first floor; general landscaping with location of walks, drives, playing areas, parking, bicycle racks, garden plots, adjoining sidewalks, streets, bus loading facilities, etc., as applicable;

4. location of sewage disposal system or sewer, water, gas and electrical services;

5. easements, demolitions and other site restrictions.

b. Architectural Plans

1. a plan for each floor and one for the roof at a scale of not less than 1/8" to the foot. These should include complete dimensions so that all sizes of rooms, wall thicknesses, methods of fabrication, materials, etc., can be readily determined;

2. all fixed utilities, built-in equipment, door swings, etc., clearly indicated;

3. If the structure is in the nature of an addition or alteration, a clear indication to show those parts which may be existing, added or remodelled;

4. the purpose of each space designated.

c. Elevations

all at the same scale as the plans. Grade lines, steps, floor levels, etc., should be included.

d. Sections

1. as many sections through the building at an appropriate scale as are required to clearly show the construction of the building, materials proposed, sill heights, ceiling heights, chalk-board heights, wall thicknesses and other pertinent information;

2. cross sections through the length and width of the building where required to show split levels, ramps, and grade relationships where site characteristics impose unusual conditions.

e. Details

1. plans, elevations and sections supplemented with scaled details showing trim, lockers, interior finishes, and such miscellaneous details as handrails, screens, showcases and other special features;

2. classroom wall elevations provided to show clearly chalkboard and tackboard areas, clocks, doors, wardrobes, shelving, cupboards and all other built-in features.

9. FINAL PLANS AND SPECIFICATIONS (Cont'd)

f. Structural

1. drawings at the same scale as the architectural plans, unless this information is shown on the architectural plans;

2. the sizes of all concrete and steel columns, beams, trusses, girders, joists, slabs, reinforcing and method of fireproofing structural members;

3. complete details, diagrams, and schedules as required for a complete understanding of the drawings;

4. a schedule of live loads used in the design of the structure.

g. Plumbing

1. drawings at the same scale as the architectural plans, unless this information is shown on the architectural plans;

2. all weepers, storm and sanitary sewer lines, water supply system with pipe sizes, stacks, vents, traps, cleanouts, valves, tanks, fixtures, bibbs (faucets), and hydrants;

3. connections to water and sewer services indicated. If private systems are required, the sewage disposal and water-supply systems should be shown in sufficient detail to make their installation and operation clear.

h. Heating and Ventilation

1. drawings at the same scale as the architectural plans, unless this information is shown on the architectural plans;

2. the size and type of boilers, boiler room equipment, pumps, tanks, valves, traps, supply and return lines, fall of lines, zones and controls;

3. type, size, location, and capacity of motors, fans, ventilators, ducts, grills and heating units.

i. Electrical

1. drawings at the same scale as the architectural plans, unless this information is shown on the architectural plans;

2. all connections inside and outside, the sizes of all conduits and lines, the location and capacity of all outlets, circuit breakers, switch panels, fuseboxes and controls for both lighting and power;

3. clock, bell and alarm systems, including all equipment, lines, outlets, controls, and public address or intercommunication systems in larger schools, when required;

4. the type and capacity of all lighting fixtures.

j. Specifications

complete specifications to accompany the final drawings. The specifications should supplement the drawings so that the two, if read in conjunction will give a complete detailed understanding of the proposed building contract.

9. FINAL PLANS AND SPECIFICATIONS (Cont'd)

k. Record of Plans

for record purposes, the Department retains a copy of the final plans as approved.

10. SPECIAL ROOMS

Suggested layouts for certain specialized rooms are included in this suggestion. If the layouts for specialized rooms should conform reasonably to the suggested layouts, they can be approved. If any serious departure is contemplated, such layouts should be submitted to the Department for consideration before they are incorporated in the final drawings.

11. FINAL APPROVAL

When final plans (working drawings) have been approved for grant purposes by the Department of Education, the board may instruct the architect to call for tenders and may tentatively award a contract. This is contingent upon the final approval of the Department of a definite amount for legislative grant purposes. When calling for tenders it is recommended that the board or the architect require the following:
(a) a Bid Bond; and
(b) a Performance Bond with guaranteed payment clause.
It is recommended that contracts between owner and contractor be drawn on standard forms (R.A.I.C. or C.C.A.). The contractor, to whom the award is made, should be notified of this contingency. Work should not commence and commitments should not be made until arrangements have been completed for the issuance and sale of debentures in an amount sufficient to meet the total cost of the project. If the lowest tender is not accepted, the reason should be given for consideration by the Department.
The following details should be submitted:
(1) amount of contracts, exclusive of site improvements;
(2) amount of architect's fees (normally 6% of item (1);
(3) estimate of cost of furniture and equipment;
(4) estimate of other expenses

The contract should not include any sum of money in excess of the contractor's tender.

12. FINANCING

The board will be informed when final approval for grant purposes has been given by the Department.

Final approval for grant purposes is given subject to the following conditions:

(a) that the Board has a clear title to the site;
(b) that no commitments are made until the necessary funds are available;
(c) that, in the case of a Public School in an organized municipality, the School Board makes clear to the council of the municipality concerned the details of this approval so that the council will know definitely what amount has been given final approval for legislative grant purposes and what the conditions of approval are;
(d) that the water supply and the provision for the disposal of sewage have been approved by the Department of Health;

12. FINANCING (Cont'd)

(e) that the final plans and specifications have been approved respecting fire safety precautions by the Ontario Fire Marshal.

13. RESPONSIBILITY

Architects, engineers, contractors, supply and equipment houses, as part of their services on a building project within the terms of their contracts with each other and with the Board, are responsible for producing a building which is structurally and mechanically safe and sound and in accordance with these suggestions.

Failing the existence of local by-laws, the National Building Code of Canada should be taken as a minimum requirement. All local by-laws and Provincial regulations respecting fire, safety and health must be observed.

The Department of Education assumes none of this responsibility. Its function in connection with building programmes lies in helping to secure, with reasonable economy, the best educational facilities.

GENERAL CONSIDERATIONS

common to

ELEMENTARY AND SECONDARY SCHOOLS

100. GENERAL CONSIDERATIONS

a. These considerations are in the nature of a guide which may assist boards, school administrators, architects, engineers, teachers, contractors, supply houses, and other agencies to plan, construct, equip and maintain satisfactory school accommodation.

b. Those items of general interest which apply to both elementary and secondary schools are shown in this general section.

c. Any suggestions contained in this guide are subject to the Acts and Regulations governing the establishment and operation of the schools concerned.

d. Nothing contained in these Suggestions is intended to restrict the design, materials or equipment for school accommodation. On the contrary, every consideration is given to progressive design and the use of new materials and equipment which will promote the efficient and economical establishment of reasonable school facilities.

e. Boards, officials and teachers are reminded of their responsibility in the planning of new school facilities. Personal preferences and idiosyncrasies should be considered carefully before decisions are made that may seriously affect, if not jeopardize, the planning of future school programmes.

101. SELECTION AND DEVELOPMENT OF THE SITE

a. The building and the site should be considered as a unit and developed so that they offer the maximum service for the educational programme concerned. It is desirable that sites be obtained well in advance of a building programme.

b. Boards should collaborate with the Local Planning Board or the Council and obtain school sites of adequate size and in suitable locations which will best serve the subdivision when it is fully developed.

c. The site should be centrally located with regard to potential population. In urban centres it is desirable that pupils attending elementary schools be not obliged to travel more than one mile. Three miles should be considered the maximum distance for pupils in urban centres attending secondary schools. In suburban and rural areas, the shifting of residential districts, the cost of transportation, and the centralization of schools may justify the introduction of a bus service.

d. It is important that the site be free from dust, noise, smoke, fumes and other distractions or nuisances. It is desirable that it be well removed from main traffic arteries, busy highways, or railways. It should be well clear of approaches to airports. If possible, the pupils should not be required to pass through busy industrial or business districts. The best location would be in an open residential area controlled by reasonable building restriction by-laws. Future developments should be checked with local town planning authorities.

101. SELECTION AND DEVELOPMENT OF THE SITE (Cont'd)

e. The site should provide a suitably level area for play purposes. It is preferable that the building be on level ground. Other flat or gently sloping ground could be used for play areas. The natural contours may be suitably landscaped.

f. Sod is the best surface for general play areas; failing this, a sandy loam is desirable. Cinders and gravel should be avoided. If the soil is of a heavy nature, it may be necessary to provide sub-surface drainage for play areas.

g. Hard surfaced courts may be desirable for providing play areas in the spring and fall.

h. The site should be so developed that all pupils will find opportunity for outdoor games and activities.

i. Utilities, including those for water supply, sewage disposal, and power, should be assured. The water supply and proposed sewage disposal system must comply with the requirements of the Ontario Department of Health.

j. To ascertain the soil bearing strength the board may wish to have soil boring tests made by a firm especially equipped for this work.

k. Where a disposal bed is planned, a test should be made to ascertain soil absorption.

l. If a board plans to purchase a site well in advance of construction, it should secure the advice of an architect regarding its suitability.

102. LOCATING THE BUILDING ON THE SITE

a. The location of the building on the site should be carefully planned. It is desirable that classroom windows be set back at least 50 feet from the street line. This will promote safety and quietness and will also give the building a better setting or appearance. The limit of future extensions should not be closer than 50 feet to the property line.

b. The Highways Improvement Act for any building that is to be located within 150 feet of the right-of-way of the Queen's Highway requires that a permit be obtained from the Department of Highways. Approval of access roads should be requested from the Department of Highways.

c. The building should be set on an elevated part of the site, and grades should be arranged to fall gently away from the building to ensure good surface drainage conditions.

d. It is important that drives, walks, courts, aprons, and parking areas be laid out to provide convenient and safe means of entrance and exit. Drives intended for the use of school buses and delivery trucks should be designed and constructed to carry the loads involved.

103. GENERAL BUILDING REQUIREMENTS

a. The building should be planned to provide accommodation for the approved activities of the school concerned. The areas thus provided should be well lighted, heated, ventilated, and appointed.

103. GENERAL BUILDING REQUIREMENTS (Cont'd)

b. Expenditures for decoration, either interior or exterior, should be given careful consideration. Skilful architectural design makes it possible to erect a simple but dignified building which will be a credit to any community.

c. The National Building Code of Canada should be taken as a minimum standard. Local building codes must be observed. The requirements of the Ontario Fire Marshall, the Department of Health and other provincial and municipal authorities must be met.

d. The single storey structure is desirable for small schools. Larger schools are likely to require two storeys. Careful consideration is necessary before three storey structures are decided upon.

e. Use of basement space for instructional areas is not recommended. Apart from boiler rooms, coal bunkers and storage rooms, basement areas are of little use.

f. Playrooms, auditoriums, cafeterias and gymnasiums should be kept as near ground level as possible for reasons of both safety and convenience.

g. Gas installations must be in accord with all regulations of the Ontario Energy Board. Gas heating installations must be made by a mechanic licensed by the Ontario Energy Board.

104. CIRCULATION WITHIN THE BUILDING

Provision for circulation of traffic within the school is most important. Traffic reaches peak conditions several times a day. During peak periods, traffic flows in opposite directions. Corridor crossings should be eliminated as much as possible. Stairwells should be located with a view to reducing corridor traffic. Good design does not permit constricted areas through which pupils must pass from one major area to another. The passage of pupils through one instructional area to another is not approved.

105. PROVISION FOR FUTURE ALTERATIONS

a. It is desirable that all instructional areas provide the maximum amount of usable space for the purposes designated. The practice of reducing such spaces by the construction of small rooms should be avoided.

b. Partitions between rooms or shops should be removable without structural damage or the disturbance of pipes and ducts, etc.

106. PROVISION FOR FUTURE ADDITIONS

The building should be designed so that future additions may be made and the following suggestions are offered:

a. provide corridors which are capable of extension;

b. avoid placing windows in walls which may be blanketed by extensions;

c. provide a boiler room which is sufficiently large and accessible for the installation of additional equipment, or which is capable of extension; provide for utilities of sufficient size and arrange for convenient cutting in of future lines;

d. make sure that future additions will not interfere with entrances and exits, driveways and disposal beds;

106. PROVISION FOR FUTURE ADDITIONS (Cont'd)

e. make service entries for water, gas and sewer sufficiently large, and locate them so that they will not be disturbed;

f. arrange all mechanical facilities such as plumbing, heating, ventilation, electrical and fire alarm so that they can be extended;

g. indicate on the plans the position of possible future additions.

107. FIRE PRECAUTIONS

Architects are required to observe the fire safety regulations contained in the National Building Code and a brochure entitled, "School Fire Safety Design Standards", which may be obtained from the Office of the Ontario Fire Marshal. Compliance with the regulations before plans are submitted to the Fire Marshal will eliminate costly errors and produce substantial savings in time and material.

The following summary is for the general information of School Boards and Architects.

a. Construction

1. School boards should be aware of their responsibility to build and maintain schools which provide the maximum degree of fire safety for their occupants.

2. The final plans and specifications of all new school construction must be approved by the Office of the Ontario Fire Marshal.

3. Approval by the Fire Marshal's Office does not relieve the architect of the responsibility of complying with local by-laws.

4. Fire regulations, as applied to the ultimate and not the immediate size of the school building, will influence the selection of materials and structural systems to be used.

5. It should be remembered that many finishes are highly combustible and when ignited emit flames, smoke, and gases which constitute a threat to the lives of the occupants.

b. Exits and Fire Escape Routes

1. Exits must be properly located, used and maintained.

2. In designing additions, care should be taken to ensure that existing exits are not blocked, and the distance between exits does not become excessive. Upon entering the corridor from any room, there shall be two main directions of egress. All hazardous areas and floor areas with an occupancy of more than 60 persons, or in excess of 1,000 square feet, shall have at least two well separated means of egress.

3. Properly designed buildings do not require exterior fire escapes.

4. Organized methods of evacuating the building should be arranged in consultation with the local fire authorities. There should be at least two separate routes from every area. Routes to be followed and all exits should be clearly marked.

107. FIRE PRECAUTIONS (Cont'd)

b. Exits and Fire Escape Routes (Cont'd)

5. Fire drills will be held at periodic intervals and provision for at least two different routes from the same area should be made. It should be kept in mind that although the speed of evacuation will be important, it is more important that the building be evacuated in an orderly manner.

c. Fire Alarm Systems

1. A manual alarm may be satisfactory in schools of fewer than four classrooms.

2. Schools of four or more classrooms should have an electric fire alarm system with all components as listed by Underwriter's Laboratories of Canada. The system should be electrically supervised so that a trouble signal sounds if the system is rendered inoperative due to shorts or grounds.

3. All systems must be the evacuation type. That is, once a station is operated the system sounds continuously until reset.

4. Fire alarm stations should be located near each door to the outside and on every floor near the stairwells. Heat actuated detectors should be installed in hazardous areas.

5. Signals shall be readily distinguishable from other sounding devices and located so that they may be heard throughout the school. Additional signals may be required inside noisy rooms.

6. There may be no push buttons for drill purposes on an approved fire alarm system. A regular station may be key operated for this purpose.

7. Pre-signal type systems which alert only a limited number of the staff are not acceptable in schools.

d. Standpipe

1. Standpipe and hose cabinets shall be installed in schools under four stories, only when required by the local fire department. These fire hoses are not for the use of the staff, but for the use of the fire fighters on their arrival at the school.

e. Fire Extinguisher Equipment

1. Fire extinguishers shall be provided in all schools. It is essential that they be checked and serviced according to prescribed instructions.

2. There are different types of fire extinguishers for different types of fires:

(i) Water type extinguishers (pressurized water, soda-acid, etc.) of 2½ gallon individual capacity should be located in the corridors on each floor so that there is one within 100 feet of travel of every location in the corridor for use on class A fires (fires in paper, wood, etc.), and in wood shops, and near coal fired heating equipment.

(ii) Type B extinguishers (CO_2 or dry chemical) should be installed near oil or gas fired heating or cooking appliances, in shops, and near electrical equipment.

Water type extinguishers should never be used on fires in electrical equipment.

Note: Carbon tetrachloride extinguishers should never be installed in schools, as these sometimes release poisonous gases when used on a fire.

108. ELECTRICAL

a. General

1. All electric wiring and apparatus must be in accordance with the current edition of the Canadian Electrical Code, and the requirements of the Ontario Hydro-Electric Power Commission.

2. Arrangements should be made with the local authorities for the most suitable and economical supply of electricity.

3. The distribution system for lighting, convenience outlets, portable devices and fractional H.P. motors should be 120-208 volt, three phase, four wire, combined power and lighting.

4. Where power is used for machines operated by pupils, 220 volt, 3 phase, is recommended. In some districts 550 volt may prove more economical.

5. Underground service should be considered for power, lighting, telephone and possibly T. V. services.

6. It is good practice to provide morality lights around the perimeter of the building.

b. Switches and Controls

1. All switches should be flush-type toggle or tumbler switches and should, in general, be installed on the knob side of entries. Key switches should not be used for control of lights in classrooms and workrooms.

2. Classroom lights should be operated by at least two switches. Where rows of lights are parallel to the main window, each row should be controlled separately.

3. In corridors and stairways the lights should be controlled by three-way switches located at each end of these spaces.

4. Remote control switches should have pilot light indication.

5. In auditoriums and assembly rooms, some or all house lights should be controllable from a switch located convenient to the point of entry and from the probable location of a portable movie projector, unless the house lights are controlled from a stage-lighting panel which can be reached by a lighted passage with conveniently located switches. In this case, a communication system of some type should be provided between the projector and the stage-lighting control panel.

c. Convenience Outlets

1. The number and location of outlets should be in accordance with the immediate and probable future use of the space.

2. Classrooms should be provided with at least two duplex outlets, one at the rear of the room and one at the front.

108. ELECTRICAL (Cont'd)

c. Convenience Outlets (Cont'd)

3. Electric heat outlets should have pilot light indication.

4. Auditoriums and assembly rooms not equipped with a projection booth should be provided with a convenience outlet at the probable location of a portable movie projector.

5. In vocational shops, general shops, and other spaces where portable electric devices are used, convenience outlets should be of the NEM.A V type to suit the 3-cord conductors supplied with such machines.

6. All receptacles should be of the grounded type.

d. Intercommunication Systems

1. In larger schools, consideration may be given to some form of intercommunication system. The system chosen and its extent may be determined by the requirements of the individual school and the complexity of its administration.

2. At least one built-in speaker cable should be provided between the projector location in the auditorium and the stage.

e. Clocks & Programme Systems

All rooms, shops, and other areas where pupils assemble should be provided with reliable clocks. The clocks or clock systems should be carefully selected and due consideration given to the availability of any necessary servicing, adjustment and repair.

The kind and size of school determines the clock system required. The following suggestions are made.

1. Elementary schools: Clocks which may be independent of one another are satisfactory.

2. Secondary schools: Since these schools usually operate on a rotary system, it is important that time be controlled by a master clock.

This may be done by the installation of a master clock in the administration quarters and secondary clocks in all rooms, shops and other areas throughout the building. Each secondary clock should be provided with a bell or buzzer to announce programme changes.

An alternative arrangement is to install a master clock in the administration quarter with bells or buzzers in all rooms and shops to announce programme changes. It might be supplemented by a few secondary clocks at strategic points.

109. HEATING

For health and efficiency it is desirable and technically possible to provide indoor air free of odour and dust, and controlled automatically for temperature and flow. Economic considerations together with the possibility of interference by non-technical personnel, make elaborate systems unsatisfactory except in large schools where there are trained operating engineers.

109. HEATING (Cont'd)

a. Types

Hot water, steam, air, electricity, or various combinations of these, can be used in conjunction with exposed or concealed radiation and diffused air supply.

Selection depends upon the requirements for ease and degree of control to speed or response, warming-up capacity, zoning of areas, necessity for complete night shut-down or temperature reduction, chances of freeze-up, operating fuel and maintenance costs.

b. Fuel

Coal, oil, gas and electricity are generally available. When selecting a fuel the following should be considered: first cost of equipment, cost of fuel delivered to the site, efficiency of consumption, operating cost including secondary costs such as the cost of electricity for operating fans, maintenance cost, replacement cost and cost of building space requirements. For better comparison all items of cost should be considered over an extended period; e.g. ten years.

Consideration should be given to possible soot and smoke nuisance in the school building and in the neighbourhood, to the height of chimney and to noise generation.

The possibility of using an alternate fuel in case of emergency or a drastic change in the unit cost of fuels, merits attention.

c. Boiler Room

The layout of equipment in a boiler room and the location of the boiler room should permit future extensions.

Construction and exits should meet the requirements of the Ontario Fire Marshal.

The Ontario Department of Labour requires full time attendance in boiler rooms where the total installed capacity of steam boilers exceeds 75 registered horse power.

Access should be provided for additional equipment.

The Ontario Fire Marshal will not permit a multiplicity of rooms with fired heaters.

In the case of large installations, boiler insurance should be obtained or approval obtained from the Boiler Inspection Branch of the Ontario Department of Labour.

d. Air Temperature

Indoor air temperatures measured at 30" to 60" above floors, should conform to the limits indicated below:

Areas where people sit (classrooms, offices)	72 deg.	to 73 deg.	F.
Areas where people are active (shops, gymnasiums)	63 "	to 70 "	F.
Areas of transient occupancy (halls, washrooms)	60 "	to 65 "	F.
Areas where people undress (health, showers)	75 "	to 80 "	F.

In the Spring and Fall, the introduction of outside air may serve for cooling to offset body heat, luminaire heat and solar heat.

109. HEATING (Cont'd)

e. Radiation

Shielding of occupants from high temperature heat sources may be necessary to intercept high radiant effects.

Possible bodily contact with high temperature heat sources should be prevented.

Consideration should be given to the reduction of the glass area in classrooms to reduce heat loss and fuel costs, and to reduce the solar heat gains in east, west and south exposures.

110. VENTILATION

a. Air Movement

An intermittent air supply tends to induce high air velocities.

A diffused air supply reduces draft.

Down drafts from windows or other cold surfaces should be prevented by blanketing with a continuous heat source.

Slight pressurization in a room will offset infiltration.

b. Air Purity

To avoid the objectionable accumulation of odours, the new air supply to a room should not be less than ten cubic feet per minute per person. In a classroom this represents approximately three air changes per hour.

Recirculation of air is economical of heat but necessitates filtration to remove odours.

Provision should be made for separate exhaust systems for laboratories, home economics, washrooms, gymnasiums, dressing rooms, shop hoods, wardrobes and lockers, staff rooms, to avoid recirculation of their air content.

Inlets for outside air should be removed from any type of exhaust or chimney. They should be above the snow line and away from blow soil. Means should be provided for draining off condensate. Louvres should not permit the entry of rain, or the accumulation of dust.

Dust filters are required for outside or recirculated air. Electrostatic filters are the most effective.

c. Noise

The development of disturbing noises by fans, pumps and compressors should be minimized and the transmission of sounds by heat distributing systems should be avoided. Vibration isolation of all equipment and adjoining pipes or ducts should be checked during the life of a building.

d. Maintenance

Heating, ventilating, and control equipment should be located conveniently for operation, servicing, supplementation or replacement. Thermostatic controls should be simple. Equipment in shops and gymnasiums should be of rugged design.

110. VENTILATION (Cont'd)

e. Unit Heaters and Unit Ventilators

Commercially available unit heaters and unit ventilators can introduce and heat effectively a controlled supply of outside air. They can provide continuous blanketing under windows to prevent downdraft.

111. PLUMBING

Plumbing installations should be in accordance with the Ontario Water Resources Act.

a. Water Supply

If a water supply other than the municipal supply, is required, it is necessary that the supply be approved by the Ontario Department of Health. This may influence the selection of a school site. Arrangements should be made with the Department of Health for periodic tests.

b. Sewage Disposal

1. Schools are required to have adequate and safe means of sewage disposal. Plans for such systems must be approved by the Ontario Department of Health.

2. No outdoor or chemical toilets will be approved where water is available for the operation of flush toilets.

c. Hot Water

An adequate supply of hot water is desirable in all schools.

d. Fixtures

The design of the type of fixtures selected should encourage desirable habits of cleanliness and health.

e. Water Closets

Water closets should be of vitreous china with flushing rim and an elongated bowl with open front seats.

f. Urinals

Urinals should be porcelain or vitreous china, properly flushed with uniformly distributed spray. Where stall types are used, rims should be set flush with or slightly below the floor level with the floor pitched toward the urinals.

g. Lavatories (Hand Basins)

1. Lavatories should be of enamelled iron or vitreous china.

2. Spring faucets are not recommended, but, where they are used, they should be of the delayed action type.

h. Drinking Fountains

Drinking fountains should be of impervious material and of a type which will not permit the mouth of the drinker to come in contact with the nozzle or permit water to fall back upon the nozzle.

111. PLUMBING (Cont'd)

h. Drinking Fountains (Cont'd)

2. Drinking fountains should be entirely separate and well-removed from lavatories and sinks. They should not be placed in washrooms.

3. Drinking fountains should be installed so that they do not become an obstruction in corridors.

i. Bibbs

An adequate number of outside keyed hose bibbs should be provided at strategic points.

112. WASHROOMS

a. The establishment of proper habits of health and sanitation is essential. Washrooms should be clean and bright, well ventilated, properly appointed and easily maintained.

b. While the number of washrooms will vary with the size of the school, there should be at least one for each sex on each floor of a secondary school. These should be located so that they are readily accessible to the various rooms which they are intended to serve. It is desirable that entrances be properly screened. Entrances to washrooms should not lead off, directly from areas of concentrated occupancy such as playrooms and assembly halls. Washroom windows should be glazed with opaque glass to ensure privacy. The practice of placing washrooms in second-rate, poorly-lighted, inaccessible quarters is not approved. In elementary schools, washrooms should be near exists or readily accessible from playgrounds.

113. LIGHTING (General Comments)

The importance of good lighting, natural, and artificial should be recognized. The aim is to provide an efficient, comfortable, and pleasing visual environment.

1. The intensity of illumination is measured in foot candles by means of a light meter.

2. The colour of light from any source is significant where the proper interpretation of colour is a factor as in art and sewing, or in the preparation of food.

3. Contrast in light intensity should be avoided between the task and the visible surroundings. It is interesting to note that a maximum contrast in lighting is desirable within the task detail. For example, it is much easier to read black ink on white paper, than pencil on white paper.

114. DAYLIGHTING

To provide good illumination by daylight requires careful and co-ordinated design and control. Classroom windows should extend from not more than 4 feet above the floor to as close to the ceiling as is structurally possible. Windows in shops should be 6 feet above the floor.

a. Unilateral Lighting

The usual type of classroom contains windows in one outside wall. The chief disadvantage of this system is that the inside row of desks ob-

114. DAYLIGHTING (Cont'd)

a. Unilateral Lighting (Cont'd)

tains only one-tenth of the illumination of the outside rows, and therefore, requires supplemental lighting.

In all classrooms except special rooms or where otherwise noted, the windows should be to the left of the pupils.

b. Light Obstruction

The distance from any classroom window to any light obstruction, such as walls and buildings, should be twice the height of that obstruction above the sill of the window.

c. Control of Glare

Adequate control of sky glare and direct sunlight should be provided through the use of baffles, deflectors, shades, curtains or angle of chalkboard. Shades or curtains should be of a highly diffusing and light coloured material.

115. ARTIFICIAL LIGHTING

a. The general artificial illumination on a plane 30 inches above the floor should be designed to provide an operating intensity 30 foot-candles. (National Building Code of Canada).

b. Lighting units of any kind should be as simple as possible and should be easily serviced and cleaned, and designed to eliminate as much glare as possible.

c. Switches should be arranged for economical use of lighting.

116. ACOUSTIC TREATMENT

The modern school houses a great variety of activities. Every attempt should be made to locate noise producing activities in areas where the least disturbance is offered to quieter activities.

Acoustic treatment is desirable in various places for various purposes.

a. In corridors: to absorb corridor noises and reduce the transmission of noises from part of the building to another.

b. In classrooms, music rooms, typewriting rooms, shops, gymnasiums, play-rooms, cafeterias: to absorb and localize noise in the area in which it is produced and to reduce noise effects within the areas themselves.

c. In auditoriums, libraries and study rooms: to promote good audition and the elimination of distractions.

If finances permit, acoustic treatment is desirable for all spaces occupied by pupils within the building.

117. FLOORS

a. The type of floor surface selected is most important. It should be easily cleaned, have good traction and acoustic qualities and, in places where equipment must be fastened, it must offer a ready and secure anchorage. Performance, cleanliness, and light variegated colour should also be considered.

b. Where wood floors are used, oil finishes are not recommended. Such finishes present a fire hazard and tend to collect and retain dirt. Special finishes are available which are hard, durable and dust resistant. Where concrete floors are used, they should be treated with an integral hardener and finished smooth.

c. Boards are advised to take such action as may be recommended by the architect for the care and preservation of floors.

118. LOCKER AND WARDROBES

a. From both social and purely practical points of view, every pupil requires suitable space for the safe, tidy and convenient storage of personal belongings.

b. Locker areas should be designed for easy supervision.

c. Wardrobes in elementary classrooms permit easy supervision.

d. Full-length lockers set flush in the corridor walls are recommended for secondary schools. Precautions should be taken to ensure that the installation is sound-proofed against transmission of sound to adjacent classrooms.

e. Both lockers and wardrobes should be well ventilated.

119. CHALKBOARDS AND TACKBOARDS

a. Provision of maximum tackboard space is desirable.

b. The selection of the highest quality chalkboard is desirable. The proposed chalkboard should be carefully compared with black slate with respect to permanence and easy cleaning.

c. Chalkboards should be provided with rails.

d. Tackboards must be fire resistant to meet the requirements of the Ontario Fire Marshal.

120. SCREENS AND GUARDS

a. Insect screens should be provided on the exterior openings of places where food is prepared or served.

b. Wire guards or armoured glass is required on gymnasium and playroom windows. Some types of electric fixtures used in gymnasiums and playrooms require guards.

121. BUILT-IN FURNITURE AND EQUIPMENT

a. Certain items of equipment and furniture should be built-in, and should become a permanent part of the building. This promotes convenience and efficiency in the various spaces concerned and, in addition, contributes to orderly appearance and good housekeeping habits.

121. BUILT-IN FURNITURE AND EQUIPMENT (Cond'd)

b. Every attempt should be made to anticipate the need and the location of such furniture and equipment.

c. Storage space is a general requirement. Its provision should not be to the detriment of chalkboard and tackboard space.

d. Small cupboards for teachers may be required in classrooms for the storage of coats, wraps and personal effects. Such facilities may be provided in the teachers' room.

e. Careful arrangements should be made in consultation with the architect for the installation of cabinets and furniture which require mechanical or electrical services. In the majority of cases, standard furniture is desirable, and provision for its installation should be made within the building contract. The board may reserve the right to purchase such furniture and equipment directly from school supply houses.

f. Tool cribs and separate storage rooms are not necessary since it is better to decentralize the tools and supplies and keep them adjacent to the machines and processes concerned in suitable, movable cupboards.

g. Furniture of any kind, standard or built-in, should be simple and rugged in character. Adjustments, loose pieces, superfluous racks, shelves, and drawers should be avoided wherever possible. Ease of maintenance and cleaning is an important consideration.

h. Display cabinets built flush into the corridor walls, strategically located throughout the school, serve a most useful purpose. They may be used for trophies and club, sewing, social studies, craft, art or shopwork displays.

Such cabinets should be provided with sliding glass doors, adjustable glass shelves, a backboard on which displays can be mounted, and a lock. Cabinets should be illuminated and so arranged that observers will not be subjected to glare.

122. INTERIOR FINISH AND DECORATION

a. Rooms and other spaces within the school should be finished with suitable, practical surfaces decorated in attractive colours. In general, warm colours are suitable for northerly rooms and cool colours for southerly exposures.

b. Appropriate finishes are available for almost any purpose. Finishes should be selected to reduce maintenance.

c. Consideration should be given to the light reflecting values of walls and ceilings. Ceilings should have a high light reflecting value. Walls should be finished in non-glossy light tints. Where soiling becomes a factor, darker colours may be used for limited areas. All surfaces should be finished so that they may be readily cleaned.

d. Wood trim and furniture should be finished in light tones, if a varnished finish is desired. Trim may also be painted or enamelled.

e. Smooth finish brick, blocks, or tile present an acceptable and durable surface.

123. EXTERIOR FINISH

a. Careful consideration should be given to the selection of materials for the exterior of the building. Durable, weather proven materials should be used to reduce maintenance.

b. Exterior doors should be recessed or protected by a canopy. Protection should be provided for doors subjected to prevailing winds.

124. FLAGPOLE

All schools should be provided with a suitable flagpole.

125. BICYCLE STORAGE

A bicycle-rack of iron picket-fence construction is generally satisfactory. Such a rack should not be too permanently anchored, since it often becomes necessary to move the entire bicycle-rack to another location. A canopy over the rack is not desirable.

126. TEMPORARY ACCOMMODATION

a. It is good policy to anticipate school requirements and make the necessary arrangements for permanent school accommodation. However, sudden growths, population shifts, and market conditions, sometimes require the provision of temporary accommodation.

b. Temporary accommodation is not desirable, but if it is used, it should be placed on the site to avoid interference with present or future buildings.

c. Temporary accommodation is likely to cost in excess of one-half the amount of permanent accommodation. Therefore, it cannot be considered as a good investment. Maintenance and operating costs are likely to be excessive.

127. INSURANCE

a. The board should secure the advice of the architect regarding the types and amounts of insurance to be placed on the building during construction.

b. Boards are obliged to provide and maintain adequate insurance on school buildings and equipment.

128. MAINTENANCE

a. In addition to normal caretaking requirements, maintenance of the grounds and building should be provided for, immediately upon taking over the building from the architect and contractor. Guarantees of all types provided for in the contract documents should be turned over by the architect and contractor and kept readily available by the board for future reference.

b. Schools frequently incorporate a number of mechanical and electrical features that require periodic adjustments, settings and maintenance. An information book should be requested from the architect or consulting engineer. Piping and valve diagrams and electric circuit information should be made available for the use of the custodian. These should be framed and fastened to the wall.

128. MAINTENANCE (Cont'd)

c. Failure of electrical or mechanical systems should be reported to the architect or sub-contractor, particularly during the guaranty period. The staff should be advised not to interfere with electrical and mechanical equipment without proper instructions.

d. Information should be obtained about the proper method and the proper materials to be used in the cleaning and maintenance of all exposed surfaces. This information can be obtained from a maintenance materials supply company, or from the manufacturer or installer of the material in the building.

e. A list of all major sub-contractors on the building should be kept by the Board in case of emergency, or for general repairs and maintenance.

f. An up to date copy of drawings and specifications should be kept on the premises at all times.

g. A good building, well constructed of durable materials and given adequate maintenance will be less costly to the board.

129. BOILERS AND PRESSURE VESSELS

All equipment of this character must meet with the requirements of the Boiler Inspection Branch of the Department of Labour. Such equipment, once installed, must be maintained in safe operating condition.

a. Insurance should be carried on such equipment. The insurance company will make arrangements for periodic inspection and certification.

b. In the case of uninsured equipment, it is obligatory that the equipment be periodically inspected and certified by the Boiler Inspection Branch of the Department of Labour.

The approved pressures should not be exceeded. Safety devices should not be modified or interfered with in any way.

130. SAFETY

a. Although every precaution may have been taken to provide safety within school buildings, there is the possibility that the original equipment may become dangerous through constant use. It is also possible that the introduction of new equipment might create dangerous situations. This is particularly true in shops.

b. Upon invitation, the Factory Inspection Branch of the Department of Labour will make a survey of shop conditions in schools and make recommendations regarding safety devices and safe working conditions.

c. The Safety Accident Prevention Association maintains a bulletin service which is available to all schools. These bulletins cover all phases of accident prevention. They are well illustrated and provide much useful information for safety education. Their use is highly recommended.

d. A board should insure itself against claims resulting from accidents incurred by pupils while under its jurisdiction.

131. PARAPLEGICS, FACILITIES FOR

Boards may wish to provide ramps, elevators, special washroom arrangements and other facilities for paraplegics.

SUGGESTED REQUIREMENTS

for

ELEMENTARY SCHOOLS

NOTE: Refer to Items 100 to 134 for "General Considerations"

200. SITE

It is becoming increasingly difficult to find sufficiently large sites in urban centres. In special circumstances, the Department may give consideration to sites smaller than those indicated. Some Boards have made arrangements with municipal park authorities for the use of park lands adjacent to sites for playground purposes. The size of a school site should be based on the total anticipated school population.

up to 100 pupils	1½ to 2 acres
up to 200 pupils	2 to 3 acres
up to 300 pupils	3 to 4 acres
up to 400 pupils	4 to 5 acres
up to 600 pupils	5 to 6 acres

The school population to be anticipated can be calculated on the basis of the total number of home-units in the area to be served.

201. CAPACITY OF THE SCHOOL

a. Classrooms offer normal accommodation for 35 pupils.

b. A kindergarten may be expected to carry a load of 20 pupils in each of the morning and afternoon sessions.

c. Special areas such as home economics rooms, industrial arts and crafts rooms, library or playroom-assemblies are not credited with a pupil load. A special classroom such as a science, a music and a library classroom can be credited with a pupil load, provided that it is used full time, without leaving a classroom unused.

202. AREAS

a. For Departmental purposes, the area of a school building is calculated on the basis of outside dimensions. The maximum area is always stated when tentative approval is given.

b. The area of a classroom is based on inside measurements, wall to wall.

c. The clear area of a room does not include wardrobe, stage or shelves. Narrow shelves under blackboards do not reduce the clear floor area of a classroom.

d. The term auxiliary area has reference to such spaces as offices, staff rooms, washrooms, stairways and stairwells.

203. FURNITURE AND EQUIPMENT

The cost of furniture and equipment varies considerably. It is essential that Boards make careful investigations with supply houses and compile equipment lists. To facilitate the detailed design of a school building by the architect, it is desirable to determine at an early date, the requirements for mechanical services, such as gas, water and electricity.

The legs of movable furniture should be provided with flexible glides of sufficient area to prevent damage to the floor.

204. CLASSROOM - Refer to Drawing #22

Location: Removed from noisy activities.
Clear Floor Area: 725 to 800 sq. ft. Min. 21 sq. ft. per pupil.
Floor Surface: Resilient.
Convenience Outlets: 2 - one at each end of room.
Light Intensity on Desks: 30 foot candles minimum

a. In elementary schools the classroom is generally the home room. Variations in the appointments are required to suit the grade concerned.

b. If the school has more than one storey, the classrooms for junior grades should be on the ground floor.

c. Wardrobes or cloak rooms for pupils' clothing should be provided.

d. Suitable storage cupboards for classroom supplies and equipment are required.

e. A cupboard for each teacher's personal effects should be provided unless such accommodation is available in the teachers' room.

f. Counter space for project work is desirable. The project area should include a deck with cupboards above and below for the storage of tools and materials. A sink built into the deck is desirable if no other sink is available nearby.

g. Basement space, if any, should be for the heating plant only. A classroom with a floor more than 4 ft. below grade is not approved for grant purposes.

h. Particular attention should be given to the sizes and heights of chairs, desks, tables, chalkboards, tackboard, project-counters, coat rails, etc. These sizes vary according to the grade concerned. It may be advisable to equip each room with about 10% oversize and 10% undersize desks to take care of the largest and the smallest pupils, who are found in these percentages in most classes.

i. Provision should be made to darken a few strategically situated rooms for the use of projectors and delineascopes.

j. The minimum ceiling height is 10 feet.

205. KINDERGARTEN ROOMS - Refer to Drawing #21.

Location: Removed from senior classrooms.
Main Room Area: 750 - 800 sq. ft.
Floor Surface: Linoleum, asphalt tile.
Convenience Outlets: 2
Light Intensity: 30 foot-candles minimum.

a. The area shown will provide accommodation for 20 pupils. A kindergarten may serve as a grade classroom part of the day. Accordingly, the equipment in use for the morning class might have to be supplemented for the afternoon class. In some instances, two classes may be placed in the one room. This means that the area required would be double that shown. However, two separate kindergartens are preferred. The following suggestions apply to a typical room intended for one class at any one time.

205. KINDERGARTEN ROOMS (Cont'd)

b. Main Room

1. The 750 - 800 sq. ft. area shown is required for general pupil activity. Additional space is necessary for cloakroom, washrooms, and vestibule.

2. Good natural lighting is most desirable. The room should be bright and cheerful, and decorated to make pleasant surroundings for the pupils.

3. Kindergarten rooms, especially in large schools, should be self-contained. Precautions should be taken to avoid the disturbing influence of older pupils. Stairs, long corridors, and unnecessary doors should be avoided, since they increase the need for supervision.

4. It may be desirable to provide means of darkening the room for the use of a projector or delineascope.

c. Cloakroom Washroom

A cloakroom which may be readily supervised from the main room should open off each kindergarten room. Toilets of standard size should be used.

d. Entrance

An entrance should be provided from the playground area through the vestibule to the cloakroom and thence to the main room. The vestibule should contain built-in cupboards for playground equipment. A low drinking-fountain may be installed in the vestibule or at some other point readily accessible to the playground area.

e. Playground Area

A playground area should be provided for the sole use of kindergarten pupils. An allowance of 2,000 sq. ft. of playground for each room is suggested. The area should be fenced off from the remainder of the school grounds by a hedge or shrubbery. It is desirable that kindergarten pupils enter this area directly from the sidewalk without crossing the general playground. Most of the area should be sodded. Part of the area should be hard surfaced and a small plot set aside for digging and planting. The kindergarten playground should not be in front of other classrooms.

206. PLAYROOMS (GENERAL PURPOSE ROOMS) - Refer to Drawing #20

Location: Removed from classrooms
Clear Floor Area: 725 to 3,000 sq. ft. (2,000 sq. ft. recommended).
Floor Surface: Linoleum, asphalt tile, hardwood. The stage floor should be wood.
Ceiling Height: 10'-0" up to 1,000 sq. ft., 14'-6" over 1,000 sq. ft.
Light Intensity: 30 foot-candles minimum.

a. Playrooms which are to be used for assembly halls should be primarily designed and appointed as playrooms. Attention should be given to providing the rapid and easy conversion from one purpose to the other.

b. Adequate artificial lighting should be provided. Good general ventilation is required. It is important that walls should be free of all projections for a height of 8 feet. Acoustic treatment of the ceiling is desirable.

206. PLAYROOMS (GENERAL PURPOSE ROOMS) (Cont'd)

c. Playrooms are not intended to serve as gymnasiums, therefore dressing-rooms, shower rooms, and apparatus rooms are not required.

d. When playrooms are used for assembly hall purposes, it is important that they be located and arranged for convenient and safe means of entry and exit. Their design and location should preclude interference with classroom activities.

e. Convenience of access from the parking area may be a consideration.

f. A kitchenette may be considered desirable.

207. HEALTH SERVICES

a. If an agreement is reached by the board of trustees with the local Board of Health for the introduction of school health services, school authorities should provide suitable space in the school concerned and the necessary fixtures and furniture. Medical and nursing supplies and equipment required for the rendering of these professional services associated with presently recognized school health programmes are usually conceded to be the responsibility of the official health agency, the Board of Health. It is most desirable that health service quarters be set up in a central location preferably adjacent to the general office.

Good light and ventilation are desirable. Convenience outlets are required in all spaces except the washroom. Sanitary finishes that do not suggest a hospital atmosphere are desirable. It is suggested that the floor be resilient material.

b. Small schools may be served by a Health Room of 150 square feet. One section should be equipped with a wash hand basin, cupboard, desk, chairs, table, etc. The other section should be set aside as a rest cubicle, provided with a cot. If not provided with a washroom, the Health Room should be near a washroom.

c. Larger schools may wish to expand the accommodation mentioned above and include a waiting room, a small washroom with toilet and hand basin and an additional rest cubicle. In this case, the area required would be 300 to 400 square feet. It may be possible to provide two small washrooms, one for girls and one for boys.

d. Boards wishing to offer full health services, including those of doctor, dentist, and nurse, would have to provide approximately 700 to 800 square feet of space. An area of this size would serve several schools.

This space should be divided to provide nurse's quarters and a common office for the doctor and the dentist. Each of these spaces requires a hand basin. The common office should be provided with plumbing connections for the dentist's chair.

A general waiting room is necessary. It should include a washroom with toilet, basin, and clothes cupboard.

The remaining space should be divided into as many rest cubicles as possible.

208. ADMINISTRATIVE OFFICES

a. The offices should be located in terms of supervision of the school and the reception of the public.

b. The principal should be provided with an office furnished and equipped for efficient administration and for meeting students, parents, teachers, and the public in an appropriate manner.

c. The office for the principal may require space for the secretary.

In larger schools a general office should be provided. Its size depends upon the size of the school. There should be access to the principal's office and to the school corridor. It should have a general waiting space separated by a counter. The counter should be provided with suitable shelves and drawers. The waiting space should be furnished with seating facilities, a bulletin board, and pigeon holes for teachers' mail. The office should be equipped with the necessary typewriters and duplicators, filing cabinets, etc. A suitable vault may be required.

209. TEACHERS' COMMON ROOM

A common room, if it is properly appointed, serves to bring the staff together. It should be provided for both men and women teachers and it is desirable that it be located centrally. The size should be such that 20% to 30% of the staff may find comfortable accommodation. Lockers or clothes cupboards should be provided for all members of the staff if such storage is not available in the classrooms. Staff washrooms are essential. They should not open into the common room.

210. CARETAKING AND MAINTENANCE

The caretakers and engineers require certain facilities to carry out their duties effectively.

a. Suitable cupboards and slop sinks should be located on each floor of the building. The cupboards should be large enough to contain the implements required for the floor concerned.

b. A room centrally located with a grade entrance should be set aside as a receiving room. The outside door to this room should be large enough to permit equipment for the maintenance of the grounds to be stored. A rest room equipped with a toilet and washing accommodation, and a hot plate, is desirable in larger schools.

c. If female caretakers are employed, a separate rest room with toilet and washing facilities and a hot-plate, is necessary.

d. The boiler room should be provided with a substantial workbench and a full range of tools, implements, etc., generally required for maintenance.

e. Fuel storage should be arranged so that classes will not be unduly disturbed when servicing is taking place. Similar precautions should be taken regarding the removal of ashes from the boiler-room and from the premises.

211. STORAGE

a. It is almost impossible to provide sufficient storage space to meet all demands. Storage space is expensive. An adequate amount should be provided, but not for items which have outlived their usefulness and should be discarded.

211. STORAGE (Cont'd)

b. Storage for classrooms, shops, instructional and administrative areas should be included in the areas concerned for convenient administration and supervision.

c. Some general storage space is desirable particularly in connection with stages, field stores, and general school supplies.

d. Basement storage is of little use because of its inconvenience. Such storage might require additional waterproofing, lighting, and ventilation, which may not be justified for this purpose alone.

212. TOILET FIXTURES

a. The general requirements for washrooms and the class and kind of fixtures are indicated in Item 112.

b. The number of fixtures required for general use by pupils with the exception of the kindergarten is suggested as follows:

100 girls	allow 6 water closets	each additional 100 - 4 W/C
100 girls	allow 4 hand basins	each additional 100 - 1 H/B
100 boys	allow 3 water closets	each additional 100 - 1 W/C
100 boys	allow 4 urinals	each additional 100 - 3 U/R
100 boys	allow 4 hand basins	each additional 100 - 1 H/B
100 pupils	allow 2 drinking fountains	each additional 100 - 1 D/F

213. LUNCH ROOM AND KITCHEN

a. In many cases urban schools are situated in such locations that pupils may go home for their noon-day meal. In these cases it is unnecessary to provide accommodation and equipment for preparing and serving hot lunches.

b. In some rural schools, it may be necessary to provide some facilities whereby the pupils may have their lunches supplemented by milk, soup, or hot beverages.

c. In larger schools, a kitchenette may be desirable. If one is provided it should be adjacent to the teachers' room and also to the playroom.

214. LIBRARY

Location:	A quiet, central position is preferred.
Accommodation:	Library area, 800 square feet; workroom with sink, reference room with storage facilities. (Total minimum area for workroom and reference room - 350 square feet).
Floor Surface:	Resilient material.
Convenience Outlets:	Two in classroom; one in each of workroom and reference room.
Light Intensity On Tables:	30 foot-candle minimum.

Acoustic treatment desirable.

214. LIBRARY (Cont'd)

Shelving:	8" library shelving, 6' high where possible; 12" library shelving, 6' high, 10 linear feet; magazine rack, 10 linear feet.
Furniture:	Long movable tables and chairs to accommodate 35 pupils; library changing desk; book truck; teacher's desk; filing cabinets; 8 linear feet chalkboard; tackboard as necessary.

A library, as distinct from a library-classroom is not regarded as carrying a class load.

SUGGESTED REQUIREMENTS

for

SECONDARY SCHOOLS

300. SITE

The following areas are suggested for secondary school sites:

up to 400 pupils	5 to 7 acres
up to 600 pupils	7 to 9 acres
up to 800 pupils	9 to 11 acres
up to 1000 pupils	11 to 12 acres
up to 1500 pupils	13 to 15 acres

The size of a site should be based on the ultimate size of the school.

301. CAPACITY OF THE SCHOOL

The capacity of the school may be computed as follows:

a. All classrooms, laboratories, commercial rooms, art rooms, music rooms, and library classrooms — 30 pupils

b. All general and vocational shops, home economics rooms, homemaking rooms, and clothing rooms — 20 pupils

c. Gymnasiums, auditoriums, and cafeterias (although these provide some instructional accommodation, they are not charged with a pupil load) — 0 pupils

302. INSTRUCTIONAL AREAS

Instructional areas are those which carry a class load and are devoted to actual instructional work, for example, classrooms, laboratories, libraries, shops, music rooms, gymnasiums, art, commercial, and home economics rooms.

The following general suggestions are made. Modifications should be made to suit local conditions.

a. Areas

1. Unless otherwise noted, the areas shown for classrooms, commercial rooms, library classrooms, music rooms, art rooms, gymnasiums, and science rooms are designed for a normal occupancy of 30 pupils, but would serve 40 pupils as a maximum.

2. General shop, home economics rooms, homemaking rooms, clothing rooms, and vocational shops will accommodate a maximum of 20 pupils.

3. An area should be included in each instructional unit for the necessary storage of supplies and equipment.

b. Widths

In general, a 23 foot width has been found satisfactory for classrooms, laboratories, home economics rooms, and for some shops. A width of 30 feet has also been found suitable for home economics rooms and some shops.

302. INSTRUCTIONAL AREAS (Cont'd)

c. Ceiling Heights

In general, ceiling heights for classrooms, laboratories and home economics rooms may vary from 9 feet to 12 feet. Shops may require special consideration. Window heads should be kept as high as possible.

1. Suggested layouts for specified rooms are included at the end of this brochure.

2. Where layouts, other than those shown are required, the Board should furnish the architect with them so that the necessary utilities can be properly located and built in for the installation of equipment. This information should be available to the architect well in advance of construction; otherwise he will be obliged to use his discretion with respect to locating utilities and fixed equipment. If power requirements are not made available in advance, the architect can provide for an estimated supply of power terminated with a suitable panel in the room concerned. The final distribution and connections would then be completed by the Board or by the machinery supply houses concerned.

303. AUXILIARY AREAS

Auxiliary areas are those which do not carry an instructional load but which may be necessary to make the school function. Examples follow:

a. Administrative offices, teachers' rooms, and student rooms;

b. Corridors, stairwells and entrances;

c. Washrooms and toilets for staff and pupils;

d. General store rooms, boiler room, maintenance area for interior and exterior equipment;

e. Lunch room, cafeteria and kitchens;

f. Physical education instructor's office, apparatus room, locker and shower rooms, spectator galleries;

g. Health service;

h. Guidance offices;

i. Less common auxiliary areas are: auditorium, pool, and rifle range.

The size, variety, and appointment of such spaces depend upon the size of the school and the services which the school proposes to offer.

304. FURNITURE AND EQUIPMENT

The cost of furniture and equipment varies considerably, especially for vocational subjects. It is important that Boards compile equipment lists before commitments are made.

310. SPECIAL PROGRAMMED INSTRUCTION ROOM

Whereas usually programmed instruction can be undertaken in a standard classroom, special facilities such as a room divided into small partioned areas may be deemed desirable.

For purposes of calculating the student places in a school, this room would be regarded as having a rating of 30 pupil places.

311. TEAM TEACHING (General)

Introduced as a scheme of teacher economy using one teacher for a large group, the Team Teaching method has added a concept from the work shop method, namely, the dispersion of the student group into small units. This supplementary idea, used without caution can result in an increase rather than a decrease in staff requirements.

Team teaching commonly makes use of a lecture room and of seminar areas.

312. LECTURE ROOM

Floor Area: 1,400 to 1,500 square feet.
Floor Surface: Resilient material, terraced.
Convenience Outlets: Two at front, one at rear.
Light Intensity: 30 foot-candles, 3 feet from floor.
Chalkboard: 60 square feet minimum.

The lecture room should have 60 to 150 theatre type seats each having a writing arm.

A demonstration table with plumbing and electricity should be provided.

For purposes of calculating the student places in a school, the lecture room is regarded as having a rating of 60 pupil places.

To meet the possibility of a lecture room becoming unnecessary, the lecture room should be of such shape and size that it can be converted into two standard classrooms.

Provision should be made for the use and storage of audio visual equipment.

313. SEMINAR AREAS (Small conference rooms)

Two seminar areas can be provided in a standard classroom, which has blackboards at both ends, a folding partition located at the short axis and two doors. Each area would accommodate 15 students. Acoustic treatment, including carpeting desirable.

Seminar areas should be provided to accommodate a load equal to the capacity of the lecture room.

314. AUDIO-VISUAL EDUCATION

As has been noted elsewhere blackout facilities should be provided in some classrooms and in any area which is to be used for assembly purposes.

315. HOME ECONOMICS ROOMS (Types)

All activities pertaining to home economics may be carried out in one room. The work may be divided conveniently however into two parts.

315. HOME ECONOMICS ROOMS (Types) (Cont'd)

A room used for the full range of activities may be called a general home economics room, but is referred to preferably as a home economics room.

A room where sewing and dressmaking are taught, is known as a clothing room.

The term home making is applied to a room in which the following activities are undertaken: food preparation and service, home care, laundry, child development and family living.

Accommodation varies with the size and kind of secondary school concerned. The following suggestions may servd as a general guide:

a. In schools where a full class load will be in attendance most of the time, a household economics room is required.

b. Where two rooms are required, one should be a homemaking room and the other a clothing room. In certain instances two home economis rooms may be desired.

c. Where more than two rooms are required, a combination of rooms such as household economics rooms, homemaking rooms, and clothing rooms may be provided.

316. HOUSEHOLD ECONOMICS ROOM - Refer to Drawings #9 and #10

Location: Convenient to classrooms
Floor Area: 1,200 to 1,400 sq. ft.
Floor Surface: Resilient material
Appliances: Gas or electric appliances are acceptable
Light Intensity: 30 foot-candles minimum
40 to 50-foot candles desirable in sewing area
Ventilation: General
Chalkboard: 36 sq. ft. minimum Tackboard: 40 sq. ft. minimum

a. General Considerations

1. The room should be appointed, furnished, and decorated to suggest the atmosphere found in the modern home.

2. The floor area may be designed to suggest designated activities. This may be done with furniture or with low partitions, as shown in drawings.

3. It is important that the position of sinks, tubs, drainboards, be considered carefully and that they be built into the building permanently.

4. Storage facilities as indicated on drawing are essential. Storage for pupils' sewing may be provided by cupboards.

5 Care should be taken that, in an attempt to get storage space, wall space is not lost to the extent that the room loses its flexibility. Apart from essential built-in equipment, all other furnishings and equipment should be of a standard self-contained character which can be rearranged easily from time to time.

a. General Considerations (Cont'd)

6. Wall space rather than window space is required. It is seldom desirable to provide windows on more than one wall. Attention should be given to the kind, size, and arrangement of windows for draping purposes.

7. It is desirable that the amount of equipment installed is such that the pupils will find adequate opportunity for experience in all activities.

b. Living Room Area

This area should be easily reached from the entrance. It may be furnished with settee, occasional chairs, coffee or end tables, bookcase, rug, floor lamp, pictures, and suitable ornaments and accessories. The teacher's desk, filing and supply cabinets might be included in or near this area.

c. Dining Room Area

The dining room should be adjacent to the kitchen and, if possible, to the living room area. It may be furnished with tables, chairs, buffet, etc. If space does not permit a formal dining room, it may be set up informally in the living room or kitchen area.

d. Kitchen Area

Each kitchen area should provide a self-contained kitchen unit. Each area should be adequate for four pupils. Allow a minimum of 2½ feet of counter space for each pupil; refer to drawings.

e. Laundry Area

1. The laundry may be located adjacent to the kitchen for economy of installation. The following equipment may be required: one enamel tub, tables, supply cupboard, automatic dryer, washing machine, ironing board and accessories.

2. If the ironing board is fixed, it should be placed in a good light, affixed to rather than built into the wall, and arranged so that it can be moved to some other location. If portable boards are used, a cupboard for storage is necessary. A suitable cupboard for the storage of portable ironing boards, brooms and other cleaning utensils is essential.

f. Sewing Area

1. As much space as possible should be left for this purpose. This area will serve a variety of purposes and should be flexible. It should be given a preferred location for good lighting.

The following equipment may be required: 6 to 8 electric sewing machines; 3 or 4 tables, 3 ft. by 5 ft. by 28 inches high, with linoleum tops; library-type chairs with storage accommodation for boxes below; suitable storage accommodation including wardrobes for hanging work in progress; cupboards for teachers' and classroom supplies and pupils' supplies and sewing; ironing board, and accessories. Sewing tables with built-in machines may be used in place of separate tables and machines or in combination with these.

316. HOUSEHOLD ECONOMICS ROOM (Cont'd)

General Considerations (Cont'd)

f. Sewing Area (Cont'd)

2. Fitting facilities which provide good light and offer a reasonable degree of privacy are essential. A separate fitting room generally requires too much space. It is suggested that a 3-fold mirror be mounted on the wall and the sides used to serve as a screen. As an alternative, the doors on wardrobes may be arranged for this purpose.

317. CLOTHING ROOM - Refer to Drawing #14

Location: Adjacent to classrooms
Floor Area: 900 sq. ft.
Floor Surface: Resilient material
Light Intensity: 40 to 50 foot-candles
Chalkboard: 48 sq. ft. minimum Tackboard: As much as possible

a. The furniture and equipment is of the same class and kind as that for the sewing unit, Item 311, f. About 8 domestic-type electric sewing machines and 2 treadle-type, together with a suitable number of tables, chairs, and storage equipment and other accessories for a class of 20 to 25 are required. Sewing tables with built-in machines may be used instead of separate tables and machines or be used in combination with these.

b. A small fitting room with cupboards as indicated on the drawing is essential.

c. As much wall space as possible should be furnished with cupboards arranged for tote-boxes and for hanging garments and storing supplies.

318. HOMEMAKING ROOM - Refer to Drawing #13

Location: Adjacent to home economics and clothing rooms
Floor Area: 1000 to 1200 sq. ft.
Floor Surface: Resilient material
Gas: May be desirable for some stoves
Convenience Outlets: As indicated on drawing
Power: For stoves and other heating devices
Light Intensity: 30 foot-candles minimum
Ventilation: Independent exhaust

a. This room is intended primarily for instruction, meal preparation and serving and homemaking activities, excepting sewing. It should include a minimum of 3 (and preferably 4) kitchens, dining areas for each kitchen, living area, laundry, storage for cleaning equipment. The dining tables and chairs may be used for instruction purposes as well, if required.

b. See general consideration, Item 311.

319. GENERAL SCIENCE LABORATORY - Refer to Drawings #3 and #4.

Location: Preferably near other science rooms.
Floor Area: 800 sq. ft. to 900 sq. ft.
Floor Surface: Resilient material.
Light Intensity: 30 foot-candles minimum.
Ventilation: Independent exhaust with local control
Chalkboard: 90 sq. ft. minimum Tackboard: 60 sq. ft. minimum.

319. GENERAL SCIENCE LABORATORY (Cont'd)

a. The furnishings and utilities in the general science laboratory should be selected for instruction in both physics and chemistry.

b. A supply of cold water is essential for the teacher's bench and students' benches. A supply of hot water is desirable at the teacher's bench.

c. Drains and soil lines should be of acid-resisting material. Cleanouts should be provided. Accessibility for maintenance and repair should be considered.

d. Each bench should be provided with a gas supply.

e. Each bench including the teacher's bench should be provided with one or two 110 V. A.C. convenience outlets.

f. Adequate provision to carry away fumes, both heavier and lighter than air, is essential. The exhaust end of the duct should be carried to a point where there will be no danger of fumes re-entering the building. Such an arrangement should be simple, positive, and so arranged that fixed ducts, hoods, etc., will not obstruct the pupils' vision of the teacher's demonstration bench. A simple method is shown on the drawing.

g. Each bench, including the teacher's, should be provided with a small acid-resisting sink. As an economy measure, sinks installed in alternate rows may be considered where fixed-bench accommodation is provided for an entire class.

h. Wherever possible, standard laboratory furniture should be purchased.

All of the tops and working surfaces should be treated to resist acid.

It is essential that the furniture and built-in equipment be selected sufficiently ahead of construction so that all necessary connections can be properly located and installed in the structure.

i. If an agriculture room is included in the school, common use may be made of the growing bench. If such a room is not included, a growing bench as indicated on the drawing, should be provided. In this case, a sunny exposure is desirable.

j. Provision should be made to darken at least one laboratory for the use of a projector.

k. A small storage and preparation room (about 180 sq. ft.) with direct communication from the laboratory may be provided. If the school has more than one laboratory, then a storage and preparation room should be provided between each pair of laboratories, in which case the area should be increased. If necessary, the storeroom may be omitted and storage cupboards placed across the back of the room as shown in Drawing #4.

320. AGRICULTURE ROOM - Refer to Drawing #7

Location: South or West exposure, adjacent to general shop and/or science room.
Floor Area: 800 sq. ft. to 900 sq. ft.
Floor Surface: Resilient material.
Gas: Desirable.
Light Intensity: 30 foot-candles minimum.

320. AGRICULTURE ROOM - (Cont'd)

a. This room should be equipped with pupil benches or tables and a teacher's demonstration bench. The tops of these benches should be acid resisting. The teacher's bench should be provided with a sink, hot and cold water, one or two electric outlets, and gas, if available.

b. A storeroom (180 sq. ft.) should be added at one end of the room and direct access arranged from the main room. A single door with grade entrance off the storeroom is desirable for ready access to an outside garden plot.

321. COMMERCIAL ROOMS

Some commercial subjects such as bookkeeping and junior office practice may be carried out in standard classrooms, which are designated therefore as classrooms. The number and kind of commercial rooms in a school depends upon the programme offered.

322. GENERAL COMMERCIAL ROOM Refer to Drawing #17.

Floor Area: 900 square feet.
Floor Surface: Resilient material or carpet.
Convenience outlets as indicated on the drawing.
Light Intensity: 50 foot-candles minimum.
Chalkboard and Tackboard: As indicated on drawing.
Acoustic Treatment necessary.

a. A general commercial room is a dual-purpose room, used for part of the day as an ordinary classroom and for the remainder of the day as a typing room. It suits the small high school or the larger high school with a limited typewriting programme.

323. TYPEWRITING ROOM Refer to Drawing #18.

Floor Area: 1,000 square feet.
Floor Surface: Resilient material or carpet.
Convenience outlets as indicated on the drawing.
Light Intensity: 50 foot-candles minimum.
Acoustic Treatment necessary.

a. Typewriter rooms should be oriented so that light comes over the right shoulder of the pupil.

324. SENIOR OFFICE PRACTICE ROOM Refer to Drawing (#18A)

Floor Area: 1,200 square feet.
Floor Surface: Resilient material or carpet.
Convenience Outlets: 20.
Light Intensity: 50 foot-candles minimum.

One typing room in a school is equipped usually for senior classes in office practice and secretarial practice. It should have a selection of duplicating machines, transcribing machines (possibly rented), a considerable amount of filing equipment and some storage cupboards. Except in a very large commercial department where there is a calculating machines room, ten representative calculating machines may be provided. The number of typewriters may be expected to vary from 20 to 40 depending upon the special equipment provided.

325. CALCULATING MACHINES ROOM Refer to Drawing (#18B)

Floor Area: 1,200 square feet.
Floor Surface: Resilient material or carpet.
Convenience Outlets: 30.
Light Intensity: 50 foot-candles minimum.

A calculating machines room should be provided only in a school having eight or more senior commercial classes.

326. SHORTHAND AND DICTATION ROOM

Floor Area: 900 - 950 square feet.
Floor Surface: Resilient material or carpet.
Convenience Outlets as in general commercial room.
Light Intensity: 50 foot-candles minimum.
Chalkboard: 32 square feet approximately. Tackboard: 32 square feet approximately.

327. GENERAL SHOP - Refer to Drawings #1 and #2.

Location: Grade level, adjacent to agriculture room.
Floor Area: 1,000, 1,200, or 1,400 sq. ft.
Floor Surface: As noted
Washing: Wash tray for 6 students
Gas: Desirable
Convenience Outlets: As indicated on drawing
Power: 3 H.P.
Light Intensity: 50 foot-candles
Chalkboard: 15 sq. ft. (Portable) Tackboard: 15 sq. ft.

a. Schools which include one or more general shops are not regarded as vocational schools.

b. A general shop should provide space and equipment for four practical subjects.

c. The shop as described is intended for schools where a full class load will be in attendance most of the time.

d. In large schools two general shops may be required. In this case, the four options may be parallel in each shop, but consideration should be given to the introduction of a wider range of practical activities. It is also possible to offer a limited number of activities in each shop, provided that at least four practical activities are offered.

e. The Board should decide at an early date as to the options to be offered.

f. Should motor mechanics or farm mechanics be included, the entire floor should be concrete. If these subjects are not included, the floor may be hardwood.

g. Forge work may be required in rural centres; it is not likely to be as popular in urban centres. If forge work is included, a concrete slab about 8 ft. x 10 ft. and a 9 inch flue should be provided.

h. The general shop should not be sub-divided into small areas. Self-contained cupboards, racks, bins, etc., are suitable for the storage of tools and supplies, which should be kept adjacent to the activity concerned. It is not desirable to enclose areas for drafting or painting.

328. PHYSICAL EDUCATION

a. General

The course in Physical Education requires that students participate in vigorous activity. The major portion of the programme necessitates the use of a gymnasium with a clear ceiling height of at least 20 feet. Approximately one third of the programme can be taught in a "physical activity" room with a ceiling height of 14 feet. Columns are not prohibited in these activity rooms. The health portion of the programme can be conducted in a classroom, which should be provided with adequate storage and facilities for picture projection.

Many school boards grant the use of the gymnasium to outside organizations. The location of storage areas, washroom facilities and entrances should be planned so that there is a minimum of interference with the areas of the school not in use.

In the event that the gymnasium is to serve also as an assembly hall, its primary function, that of physical education, is not to be sacrificed.

b. Required Accommodation.

1. One gymnasium 45 ft. x 70 ft. suffices for the physical education programme of a school with up to 400 pupils.
2. Two gymnasia will serve up to 800 pupils.
3. Two gymnasia plus one activity room 45 ft. x 70 ft. x 14 ft. will serve up to 1,000 pupils.
4. Two gymnasia plus two activity rooms will serve up to 1,500 pupils.

c. Floor

A wood surface is preferred by Physical Education authorities for gymnasia, although it requires careful installation and maintenance. Temperature and humidity changes occasionally make necessary the installation of a resilient synthetic surface on concrete.

Where floor fittings are to be installed, specifications should be made available to the architect before the floor is laid. All fastenings for gymnasium apparatus attached to the walls or floors, should have these surfaces free and unobstructed when the equipment is not in use.

d. Walls

1. The walls should be smooth, durable and require little maintenance. Apparatus installed on walls should have no sharp projections. The architect should be supplied with specifications for basketball back stops, wall ratchets and climbing apparatus.

2. Window sills should not be less than 8 feet above the floor.

e. Apparatus Room

A single gymnasium should have an apparatus room of not less than 300 square feet.
A double gymnasium or two gymnasia should have an apparatus room of not less than 400 square feet.
An apparatus room should be on same level as gymnasium, and it should be adjacent to the gymnasium. The door opening should be at least ,5 feet 0 inches.

328. PHYSICAL EDUCATION (Cont'd)

f. Lighting

Lighting should be 20 foot-candles minimum.

g. Physical Teachers' Offices

A physical education office with an area of 150 to 170 square feet should be readily accessible to each gymnasium. One office can serve two adjacent gymnasiums. It may be considered desirable to have an office for the male teacher or teachers and one for the female teacher or teachers of physical education. Each office should have a wash basin, a shower and a water closet.

h. Dressing Rooms

Two dressing rooms, each of 800 square feet, are desirable whether associated with a single or double gymnasium. Benches, cantilevered for cleanliness, should provide for a maximum load of 40 pupils. Narrow shelves should be provided for clothes, with hooks or pegs below for clothing. Corners and projections should be avoided.

i. Showers

The shower room should be accessible from dressing room by a single door with 4 inch curb. There should be a drain on dressing room side of curb. Showers should be open gang with 6 to 8 heads at shoulder height at 8 foot centres. The master valve should be in the gymnasium office. There should be an outlet from soap dispenser between showers. There should be no sharp corners or projections.

The area should provide 40 linear feet of well ventilated hanger space.

j. Bleachers

General

Provision for spectators has attained great popularity in recent years. In the case of a single gymnasium, spectators may be accommodated in a gallery, preferably on the long side, possibly over the dressing rooms and showers.

329. HEALTH SERVICES

a. If an agreement is reached by the board of trustees with the local Board of Health for the introduction of school health services, school authorities should provide suitable space in the school concerned and the necessary fixtures and furniture. Medical and nursing supplies and equipment required for the rendering of these professional services associated with presently recognized school health programmes are usually conceded to be the responsibility of the official health agency, the Board of Health. It is most desirable that health service quarters be set up in a central location preferably adjacent to the general office.

Good light and ventilation are desirable. Convenience outlets are required in all spaces except the washroom. Sanitary finishes that do not suggest a hospital atmosphere are desirable. It is suggested that the floor be resilient material.

329. HEALTH SERVICES (Cont'd)

b. Small schools may be served by a Health Room of 150 square feet. One section should be equipped with a wash hand basin, cupboard, desk, chairs, table, etc. The other section should be set aside as a rest cubicle, provided with a cot. If not provided with a washroom, the Health Room should be near a washroom.

c. Larger schools may wish to expand the accommodation mentioned above and include a waiting room, a small washroom with toilet and hand basin and an additional rest cubicle. In this case, the area required would be 300 to 400 square feet. It may be possible to provide two small washrooms, one for girls and one for boys.

d. Boards wishing to offer full health services, including those of doctor, dentist, and nurse, would have to provide approximately 700 to 800 square feet of space. An area of this size would serve several schools.

This space should be divided to provide nurse's quarters and a common office for the doctor and the dentist. Each of these spaces requires a hand basin. The common office should be provided with plumbing connections for the dentist's chair.

A general waiting room is necessary. It should include a washroom with toilet, basin, and clothes cupboard.

The remaining space should be divided into as many rest cubicles as possible.

330. GUIDANCE

1. Because principals, vice-principals and counsellors must have ready access to student records, and also because frequent communication is required between administrative officers and Guidance personnel, Guidance Services quarters should be located next to, and connected with, the general administrative office. There should be direct access from the corridor also so that students may enter without having to pass through the general office.

2. The Guidance Services Unit should have

(a) an outer reading room to accommodate a library table and chairs for student use, files for occupational and educational information, display racks for pamphlets, bookshelves, bulletin boards, and a desk for the Guidance secretary; locked cupboards for test storage easily accessibly by counsellors.

(b) counselling rooms, each approximately 100 square feet, with full partitions to ensure privacy, one room being provided for each 500 students. Each counselling room should be large enough to accommodate a filing cabinet, a book shelf, a small desk, and three or four chairs.

(c) a Guidance classroom near the Guidance office and of regular classroom size. As well as chalkboard, there should be generous provision of bulletin board space for displays of educational and occupational information. Cupboards and shelves for storage of reference materials are required also. Because films and filmstrips are used so frequently in Guidance, some system of darkening the classroom windows should be provided.

331. ADMINISTRATIVE OFFICES

a. The offices should be centrally-located with easy access to the main school and to the public.

b. In the small school, the office for the principal may be required to provide space for the secretary.

Furnishings and equipment should include desks, chairs, typewriter, filing cabinets, and a small safe.

c. In the larger school, the principal should be provided with an office furnished and equipped for efficient administration and to meet students, parents, teachers, and public in an appropriate manner.

A general office should be provided. Its size depends upon the size of the school. There should be access to the principal's office and to the school corridor. It should have a general waiting space separated by a counter. The counter should be provided with suitable shelves and drawers. The waiting space should be furnished with seating, bulletin board, pigeon holes for teachers' mail. The office should be equipped with the necessary typewriters and duplicators, filing cabinets, etc. A suitable vault should be included in the building contract. A free-standing safe may be used instead of a vault.

d. In the very large school, an assistant principal's office should be provided.

e. The office should be capable of expansion to meet future needs. Floor space should be provided for P.A. and T.V.

332. OFFICES FOR HEADS OF DEPARTMENTS

Where Departments within a school become sufficiently large, an office may be provided for the head of the Department. In vocational schools, an office should be provided for the technical director.

It is desirable that such offices be centrally-located with respect to the Department concerned and that access be made to the corridor and to the adjoining room or shop in which the head or director may be required to teach.

333. TEACHERS' ROOMS

As a basis for the size of a teachers' room, provide 100 square feet for the first teacher and 25 square feet for each additional teacher. Locker or clothes storage should be provided for all members of the staff, if such storage is not available in the classrooms. Washrooms for men and for women may be adjacent but should not open directly into the common room. In a larger school a kitchenette may be desirable.

334. CARETAKING AND MAINTENANCE

a. The caretakers and engineers require adequate facilities to carry out their duties effectively. Their accommodation may include the following areas: boiler room, transformer vault, receiving room and outside storage. Some of these areas may be combined in smaller schools.

b. Suitable cupboards and slop sinks should be located on each floor of the building. The cupboards should be large enough to contain the implements required for the floor concerned. If the floor area on any floor exceeds 6,000 sq. ft. then additional slop sinks should be added for each additional 6,000 sq. ft.

334. CARETAKING AND MAINTENANCE (Cont'd)

c. If female caretakers are employed, a separate rest room with toilet and washing facilities and a hot plate is necessary.

335. STORAGE

a. It is almost impossible to provide sufficient storage space to meet all demands. Storage space is expensive. An adequate amount should be provided, but not for such items which have outlived their usefulness and should be discarded.

b. Storage for classrooms, shops, instructional and administrative areas should be included in the space concerned from a point of view of convenience.

c. Some general storage space is desirable particularly in connection with stages, field stores, caretaking, etc.

d. Basement storage is of little use due to its inconvenience. Such storage might require additional waterproofing, lighting and ventilation which may not be justified for this purpose alone.

336. TOILET FIXTURES

a. The general requirements for washrooms and the class and kind of fixtures are indicated in Items 112 and 113.

Toilet facilities for shops, gymnasiums, administrative offices, teachers' rooms, and caretakers' quarters are indicated under the various items concerned.

b. The number of fixtures required for general use by pupils is suggested as follows:

100 girls	allow 5 waterclosets,	each additional 100 - 3 W/C
100 girls	allow 4 handbasins,	each additional 100 - 1 H/B
100 boys	allow 3 waterclosets,	each additional 100 - 1 W/C
100 boys	allow 4 urinals,	each additional 100 - 2 UR
100 boys	allow 4 handbasins,	each additional 100 - 1 H/B
100 pupils	allow 2 drinking fountains,	each additional 100 - 1 D/F

338. CAFETERIA Refer to Drawing #25

a. Student lunch facilities may be accommodated in a cafeteria, cafeteria-classroom, or one or more standard classrooms, depending upon the enrolment and the location of the school in the area served.

b. Allowing 10 square feet per pupil for 1/3 of the enrolment provides an adequate area for this room with staggered lunch periods.

c. This area should be contiguous with other student and public assembly areas such as gymnasium, auditorium, etc., and should be located and designed for maximum flexibility of use for study area, assemblies, etc.

d. Location should permit expansion with the future growth of the school.

e. Interior finishes should be selected for easy maintenance qualities. Good artificial ventilation and screens for opening sash should be provided.

f. A minimum of 30 foot-candles of illumination should be provided.

338. CAFETERIA (Cont'd)

g. Long tables and individual chairs should be provided.

h. Cost of lunches should be kept modest. A limited menu, adequate equipment and student popularity can reduce, if not eliminate subsidization.

339. KITCHEN Refer to Drawing #24

a. Food preparation may be made by hired help or caterers on the premises. Food may also be prepared by caterers off the premises and served on the premises or dispensed by automatic vending equipment. In each case kitchen and servery requirements will vary.

b. Servery or vending area should be placed to control traffic, expedite delivery and reduce cross traffic. Separate milk bar or dessert counter can be provided to expedite the serving of supplements to students with home prepared lunches.

c. Cashier should be located at control point.

d. Whether food is prepared on the premises or by caterer, the Board should have adequate liability protection.

e. In all cases kitchen and servery should be readily isolated from the cafeteria to reduce noise and odour during other uses of the cafeteria.

f. Kitchen area should be capable of expansion where cafeteria has been designed for future expansion.

g. A grade location is preferable for delivery of supplies and handling of garbage. A garbage enclosure with good ventilation should be provided.

h. Quantity, type and quality of kitchen equipment should be selected in accordance with number of meals to be served, menu variance and availability of help. Cheap and inadequate equipment can result in high maintenance and operating costs.

i. Ventilation on an independent exhaust system, screens for opening sash, and careful attention to the use of easily maintained finishes is important.

j. Washroom and change facilities shall be provided for kitchen help.

k. Modest storage area for bulk purchases should be provided. Walk-in refrigerated storage areas may be provided in larger schools.

l. Consideration should be given to the flow of food preparation to reduce manpower and provide fast service. Serving rate is usually 12 students per minute from a single well-planned servery.

m. Soiled dish return should be located to reduce cross traffic in both the cafeteria and the kitchen.

n. Kitchen layouts and facilities should be approved by the local Health Unit.

340. SWIMMING POOLS

It is recognized that the primary function of any pool provided by a School Board is to provide facilities for swimming instruction. However, the Board, and where possible in conjunction with the local council or councils, should consider at the early planning stage what extra cost would be involved in providing a short course pool of the minimum standards. A pool of this minimum standard can successfully fulfil many more functions for both school and community than the "instruction pool".

The following points should be considered by a board proposing to build a short course pool.

1. Minimum length of pools should be 25 yds. + 1" finished dimension.
2. Minimum width of pool should be 28'0" to accommodate four lanes each 7'0" wide.
3. Metre spring boards should be considered (clear height above board to clear ceiling in diving area should be 15'0" minimum, 17'0" is preferable). The foregoing clearance heights are also applicable to 3 metre boards. Most School Boards will find the installation of a 3 metre board undesirable by reason of cost.
4. "Deck level roll out gutters" are preferred in "recreation" pools, but "scum gutters" are more acceptable in "competition pools".
5. Non-slip tile should be installed along all walls of the pool to a depth of 30" below the deck or scum gutter.
6. Pool markings:

   Generally should be white with contrasting markings.

   (a) Safety
      (i) Markings should be permanent.
      (ii) Depth markings should show shallowest depth and regular depth intervals (preferably in 1'0" stages). These markings should be on the inner pool wall on both the long sides of the pool.

   (b) Competition markings:
      (i) Guide lines, 10" wide coloured, should be laid at the centre line of each lane and continue up each end wall of the pool.
      (ii) Lane numbers, starting at 1 from right to left should be installed in permanent colour at each end on the inner face of pool.
      (iii) Along long sides of pool, distances should be marked off at 5 yd. intervals on the inner face of the pool.
      (iv) It is useful to permanently mark the 220 yd. and 440 yd. distance. These should be marked on the inner face of the pool and the top surface of the deck. Where possible, sockets should be provided so that poles may be installed, allowing flags to be strung across, indicating finishing line.
      (v) If water-polo is to be considered, 6" wide lines in contrasting colour, should be installed on the bottom of the pool, and continuing up the inner face of the pool at the following distances from the pool ends: 1'0", 4'0", 7'0" and centre line.

7. Pool depths
   (a) Pool with no diving boards
      (1) Pool should slope from 3'6" minimum at shallow end to minimum of 6'0" at deep end. The gradient under 5'0" depth should not exceed 1'0" in 15'0".

7. Pool depths (cont'd)
   (b) Pool with diving boards
      (i) 1 metre board; to provide adequate safety, an area 20'0" wide and 20'0" long centred on the free end of any diving board should be a minimum of 10 ft.
      (ii) 3 metre board; to provide adequate safety, an area 20'0" wide and 20'0" long centred on the free end of any diving board should be a minimum of 12 ft.
      (iii) Where both 1 metre and 3 metre boards are to be installed side by side, they should be 15'0" apart and a minimum of 10'0" from the side of the pool.

8. A non-slip surface on the deck around the pool is desirable as a safety measure.

9. Lighting
   (i) General pool lighting should be well distributed having an intensity of 30 foot-candles minimum.
   (ii) Underwater lighting is suggested as a safety measure.
   (iii) An emergency standby lighting system independent of the main electrical system is desirable for safety.

10. Steps should be taken to reduce the noise level in the pool as much as possible.

11. The bathers' access to the pool should not be at the deep end.

12. Adequate lifesaving equipment should be provided in the pool area.

13. The pool deck should extend around all four sides of the pool.

14. All pools shall require the approval of the Local Board of Health.

Plans and specifications of the pool and its auxiliary areas, including site plan, mechanical, electrical, plumbing and drainage, shall be submitted to the Department of Health. The Department of Health will send its report thereon to the local Medical Officer of Health. The local Medical Officer of Health will inform the School Board of approval or necessary changes and a copy of the letter will be sent to the architect concerned.

NOTE RE ELECTRICAL WORK
INDIVIDUAL SWITCHES WITH LOCK ON BOX AT ELCB POWER MACHINE RECOMMENDED. MASTER SWITCH CONTROLLING ALL MACHINES NOT RECOMMENDED

2'-6" x 36" PORTABLE CHALK BOARD.

POSSIBLE LOCATION OF DISTRIBUTION PANEL BOX IF FLOOR POWER TROUGH IS NOT USED.

RACK FOR VERTICAL STORAGE OF LUMBER AND BAR METALS

6'-0" WASH TROUGH

TACK BOARD OVER TROUGH

POWER TROUGH

OUTLET & SWITCH FOR FUTURE VACU BRAKE

FORGE IN DARKEST PART OF ROOM

FORGE AREA (CONCRETE FLOOR)

PROJECT STORAGE RACK

TOOL CABINET

23'-0"

ALTERNATIVE POWER DISTRIBUTION SYSTEMS

(a) A SURFACE MOUNTED DISTRIBUTION PANEL BOX PLACED SO THAT EXPOSED CONDUIT CAN BE EXTENDED ALONG WALL AND DROPPED DOWN WHERE REQUIRED FOR POWER LEADS TO RUN BETWEEN SLEEPERS.

(b) POWER CONDUIT UNDER FLOOR FROM WHICH WIRING MAY BE FISHED BETWEEN SLEEPERS TO OTHER PARTS OF FLOOR. (SEE POWER TROUGH DETAIL BELOW.)

WOOD FLOOR ON SLEEPERS
(CONCRETE FLOOR IS NOT RECOMMENDED)

NOTE

1. FLEXIBILITY WHICH WILL PERMIT RE-ARRANGEMENT OF EQUIPMENT AT ANY TIME IS IMPORTANT. THIS IS PARTICULARLY TRUE FOR THE DISTRIBUTION OF POWER
2. SUBDIVISIONS OF ANY KIND FOR OFFICES, TOOL CRIBS, DRAUGHTING, PAINT OR STORE ROOMS ARE NOT RECOMMENDED
3. DOORS OTHER THAN THE SINGLE DOOR TO THE SCHOOL CORRIDOR ARE UNNECESSARY
4. TOOL CABINETS INDICATED AND WORK BENCHES, DRAUGHTING TABLES, AND PORTABLE CHALK-BOARD ARE NOT USUALLY INCLUDED IN THE BUILDING CONTRACT. THE OTHER ITEMS SHOWN SHOULD BE INCLUDED IN THE CONTRACT.

52'-0"

FLOOR PLAN

0 1 2 3 4 5 6 7 8 9 10

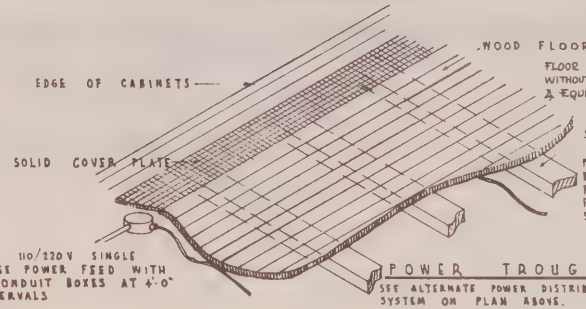
23' x 44' — 1000 SQ. FT.

23' x 52' — 1200 SQ. FT. (AS SHOWN ABOVE)

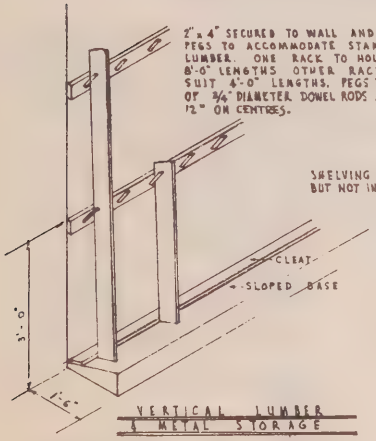
23' x 61' — 1400 SQ. FT.

CEILING HEIGHT - MAY BE SAME AS CLASS ROOMS

ALTERNATIVE SHOP SIZES


WOOD FLOOR
EDGE OF CABINETS
FLOOR MUST OFFER FIRM SUPPORT WITHOUT SPRING FOR MACHINES & EQUIPMENT
SLEEPERS
SOLID COVER PLATE
POWER LEADS FROM CONDUIT BOXES MAY BE BROUGHT TO REQUIRED POSITION BY FISHING BETWEEN THE SLEEPERS.
3 H.P. 110/220 V SINGLE PHASE POWER FEED WITH 4" CONDUIT BOXES AT 4'-0" INTERVALS

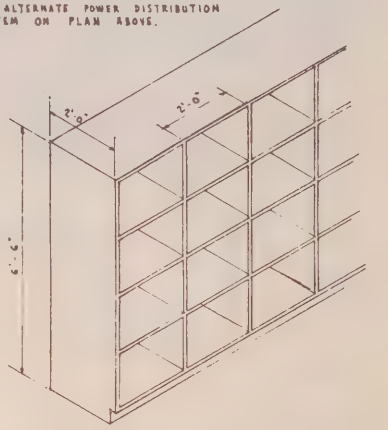
POWER TROUGH
SEE ALTERNATE POWER DISTRIBUTION SYSTEM ON PLAN ABOVE.


2" x 4" SECURED TO WALL AND WITH PEGS TO ACCOMMODATE STANDING LUMBER. ONE RACK TO HOLD 8'-0" LENGTHS OTHER RACK TO SUIT 4'-0" LENGTHS. PEGS TO BE OF ¾" DIAMETER DOWEL RODS AT 12" ON CENTRES.
SHELVING SUPPLIED BUT NOT INSTALLED
CLEAT
SLOPED BASE
3'-0"
1'-6"

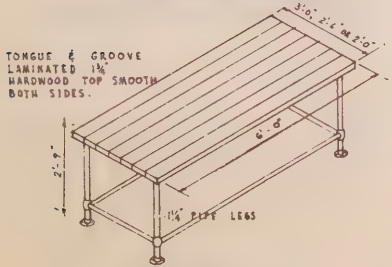
VERTICAL LUMBER & METAL STORAGE

1'-0"
4'-0"
CABINET OF SUBSTANTIAL CONSTRUCTION OF ¾" PLYWOOD OR EQUIVALENT WITH SOLID SLAB TYPE FULL HEIGHT DOORS.
6'-6"
INSIDE OF CUPBOARD TO BE SMOOTH. SUNK OR RAISED PANELS ARE NOT DESIRABLE. FOR HANGING TOOLS

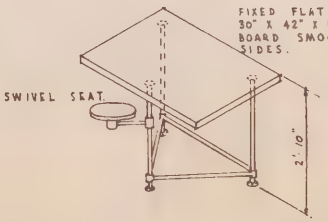
TOOL CABINET
TO BE FREE STANDING



PROJECT STORAGE RACK



WORK BENCH



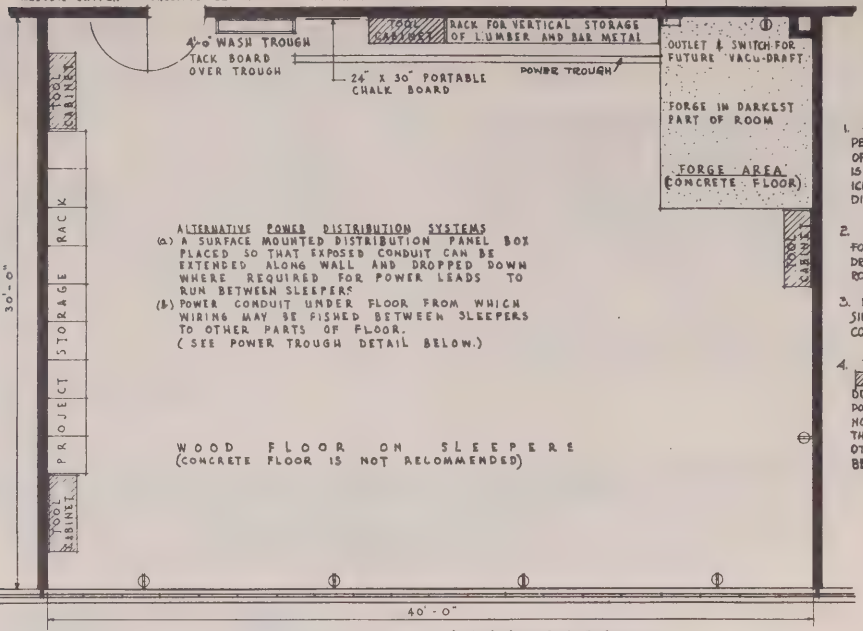
DRAUGHTING TABLE

SUGGESTED LAYOUT OF GENERAL SHOP
(SECONDARY SCHOOLS)
ONTARIO DEPARTMENT OF EDUCATION
VOCATIONAL EDUCATION BRANCH

APPROVED BY... R. A. Beattie ..DIRECTOR
JANUARY 1951 DRAWING NO 1

NOTE RE ELECTRICAL WORK
INDIVIDUAL SWITCHES WITH LOCK ON BOX AT EACH POWER MACHINE RELOMMENDED.
MASTER SWITCH CONTROLLING ALL MACHINES NOT RECOMMENDED

POSSIBLE LOCATION OF DISTRIBUTION PANEL BOX IF FLOOR POWER TROUGH IS NOT USED



ALTERNATIVE POWER DISTRIBUTION SYSTEMS
(a) A SURFACE MOUNTED DISTRIBUTION PANEL BOX PLACED SO THAT EXPOSED CONDUIT CAN BE EXTENDED ALONG WALL AND DROPPED DOWN WHERE REQUIRED FOR POWER LEADS TO RUN BETWEEN SLEEPERS
(b) POWER CONDUIT UNDER FLOOR FROM WHICH WIRING MAY BE FISHED BETWEEN SLEEPERS TO OTHER PARTS OF FLOOR.
(SEE POWER TROUGH DETAIL BELOW.)

WOOD FLOOR ON SLEEPERS
(CONCRETE FLOOR IS NOT RELOMMENDED)

NOTE

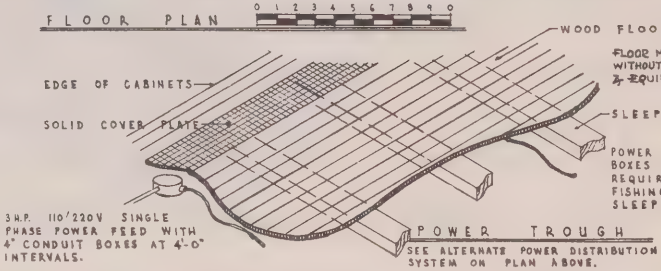
1. FLEXIBILITY WHICH WILL PERMIT REARRANGEMENT OF EQUIPMENT AT ANY TIME IS IMPORTANT. THIS IS PARTICULARLY TRUE FOR THE DISTRIBUTION OF POWER.
2. SUBDIVISIONS OF ANY KIND FOR OFFICES, TOOL CRIBS, DRAUGHTING, PAINT OR STORE ROOMS ARE NOT RECOMMENDED.
3. DOORS OTHER THAN THE SINGLE DOOR TO THE SCHOOL CORRIDOR ARE UNNECESSARY.
4. TOOL CABINETS INDICATED [▨] AND THE WORKBENCHES, DRAUGHTING TABLES AND PORTABLE CHALKBOARD ARE NOT USUALLY INCLUDED IN THE BUILDING CONTRACT. THE OTHER ITEMS SHOWN SHOULD BE INCLUDED IN THE CONTRACT.

30' X 33'	1000 SQ. FT.
30' X 40'	1200 SQ. FT (AS SHOWN ABOVE)
30' X 46'	1400 SQ. FT.

CEILING HEIGHT - MAY BE SAME AS CLASS ROOMS

ALTERNATIVE SHOP SIZES

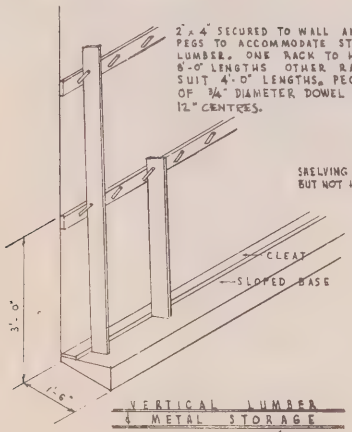
FLOOR PLAN 0 1 2 3 4 5 6 7 8 9 0


WOOD FLOOR
EDGE OF CABINETS
SOLID COVER PLATE
SLEEPERS
3 H.P. 110/220V SINGLE PHASE POWER FEED WITH 4" CONDUIT BOXES AT 4'-0" INTERVALS.

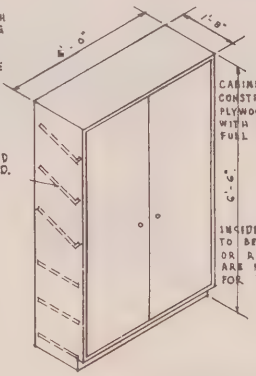
FLOOR MUST OFFER FIRM SUPPORT WITHOUT SPRING FOR MACHINES & EQUIPMENT.

POWER LEADS FROM CONDUIT BOXES MAY BE BROUGHT TO REQUIRED POSITION BY FISHING BETWEEN THE SLEEPERS.

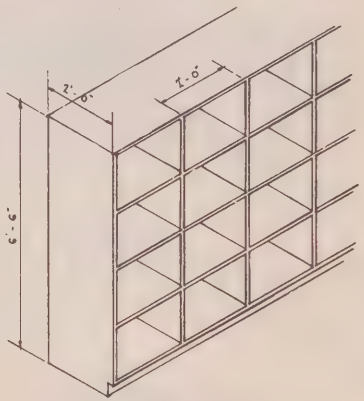
POWER TROUGH
SEE ALTERNATE POWER DISTRIBUTION SYSTEM ON PLAN ABOVE.


2" x 4" SECURED TO WALL AND WITH PEGS TO ACCOMMODATE STANDING LUMBER. ONE RACK TO HOLD 8'-0" LENGTHS OTHER RACK TO SUIT 4'-0" LENGTHS. PEGS TO BE OF ¾" DIAMETER DOWEL RODS AT 12" CENTRES.
SHELVING SUPPLIED BUT NOT INSTALLED.
CLEAT
SLOPED BASE
3'-0"
1'-6"

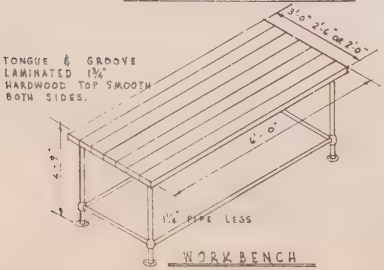
VERTICAL LUMBER & METAL STORAGE


2'-0"
1'-8"
6'-6"
CABINET OF SUBSTANTIAL CONSTRUCTION OF ⅜" PLYWOOD OR EQUIVALENT WITH SOLID SLAB TYPE FULL HEIGHT DOORS
INSIDE OF CUPBOARD TO BE SMOOTH. SUNK OR RAISED PANELS ARE NOT DESIRABLE. FOR HANGING TOOLS.

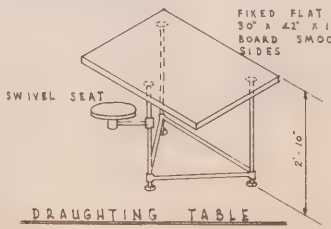
TOOL CABINET
TO BE FREE STANDING



PROJECT STORAGE RACK

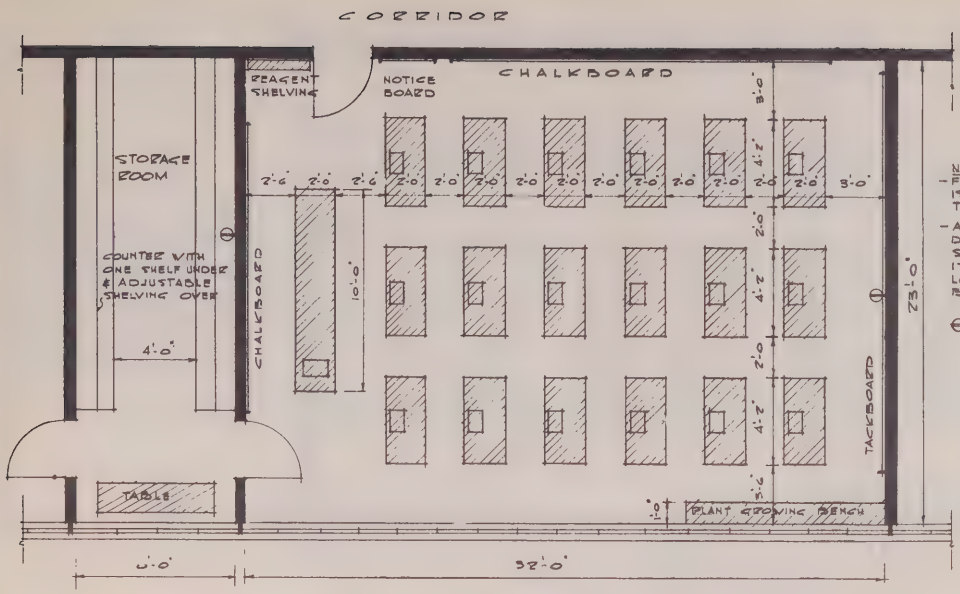


WORKBENCH



DRAUGHTING TABLE

SUGGESTED LAYOUT OF GENERAL SHOP
(SECONDARY SCHOOLS)
ONTARIO DEPARTMENT OF EDUCATION
VOCATIONAL EDUCATION BRANCH
APPROVED BY.... K. A. Bratter .. DIRECTOR
JANUARY 1951 DRAWING NO 2

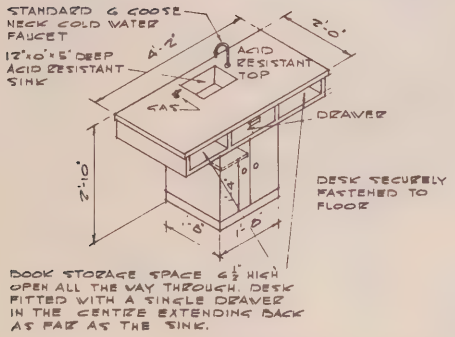


FLOOR PLAN

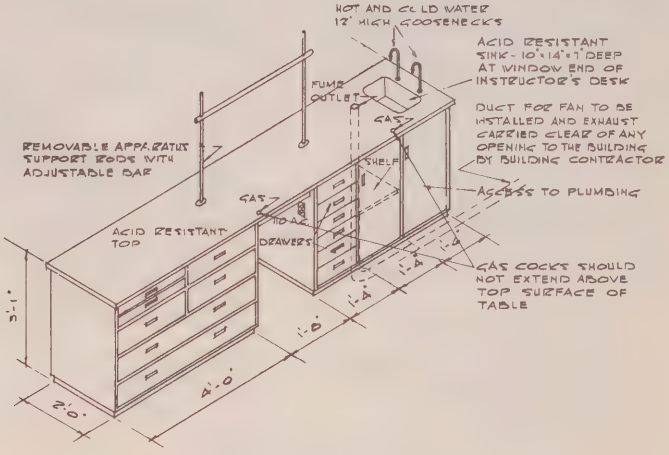
SCALE IN FEET — 0 1 2 3 4 5 6 7 8 9 10

PLAN FOR A TWO LAB. SCHOOL

ADJOINING LABS. WITH A COMMON STOREROOM SHOULD BE ARRANGED WITH INSTRUCTORS' DESKS AS SHOWN

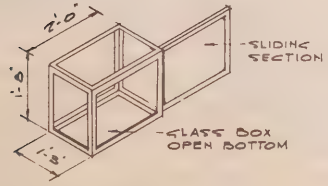

STANDARD 6 GOOSE NECK COLD WATER FAUCET
12"x10"x5" DEEP ACID RESISTANT SINK
ACID RESISTANT TOP
GAS
DRAWER
2'-10"
DESK SECURELY FASTENED TO FLOOR
BOOK STORAGE SPACE 6½" HIGH OPEN ALL THE WAY THROUGH. DESK FITTED WITH A SINGLE DRAWER IN THE CENTRE EXTENDING BACK AS FAR AS THE SINK.

PUPILS' SCIENCE DESK

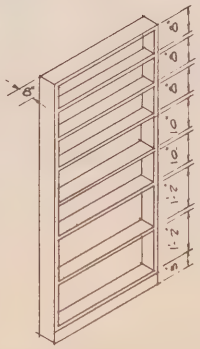

HOT AND COLD WATER 12" HIGH GOOSENECKS
ACID RESISTANT SINK - 10"x14"x7" DEEP AT WINDOW END OF INSTRUCTOR'S DESK
FUME OUTLET
GAS
DUCT FOR FAN TO BE INSTALLED AND EXHAUST CARRIED CLEAR OF ANY OPENING TO THE BUILDING BY BUILDING CONTRACTOR
REMOVABLE APPARATUS SUPPORT RODS WITH ADJUSTABLE BAR
SHELF
ACCESS TO PLUMBING
ACID RESISTANT TOP
DRAWERS
GAS COCKS SHOULD NOT EXTEND ABOVE TOP SURFACE OF TABLE
3'-1"
2'-0"
4'-0"

INSTRUCTOR'S DESK

NOTE
FOR A GENERAL SCIENCE LABORATORY WITH SELF-CONTAINED STORAGE SEE DRAWING No 4



FUME HOOD
(FOR USE OVER FUME OUTLET AT INSTRUCTOR'S DESK)

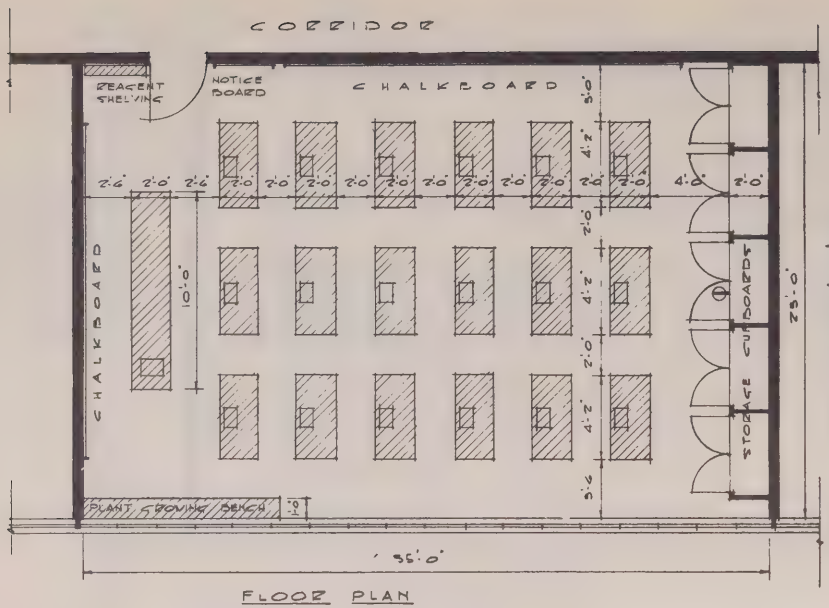


REAGENT SHELVING

SUGGESTED LAYOUT OF GENERAL SCIENCE LABORATORY

ONTARIO DEPARTMENT OF EDUCATION
SECONDARY EDUCATION

APPROVED BY A.S. Hooper SUPERINTENDENT
AUG. 1951 DRAWING No 3

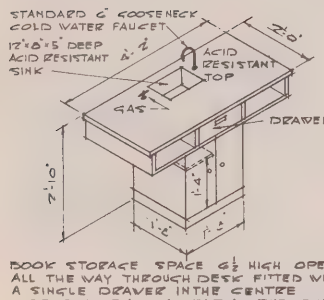


NOTE:
- FURNITURE INDICATED ▨ IS NOT USUALLY INCLUDED IN THE BUILDING CONTRACT.
- ALL NECESSARY GAS, WATER, DRAIN AND ELECTRIC CONNECTIONS SHOULD BE RUN TO EACH ITEM CONCERNED AND LOCATED AND INSTALLED BY THE BUILDING CONTRACTOR

⊖ ELECTRIC CONVENIENCE OUTLET

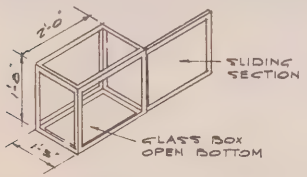
FLOOR PLAN

SCALE IN FEET 0 1 2 3 4 5 6 7 8 9 10



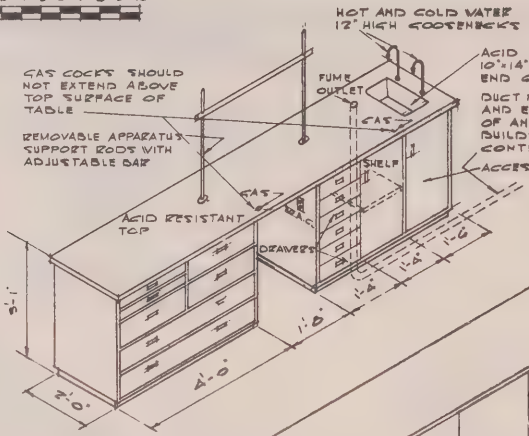
BOOK STORAGE SPACE 6½" HIGH OPEN ALL THE WAY THROUGH DESK FITTED WITH A SINGLE DRAWER IN THE CENTRE EXTENDING BACK AS FAR AS THE SINK

PUPILS' SCIENCE DESK

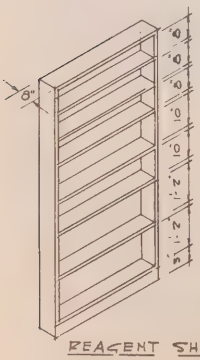


FUME HOOD

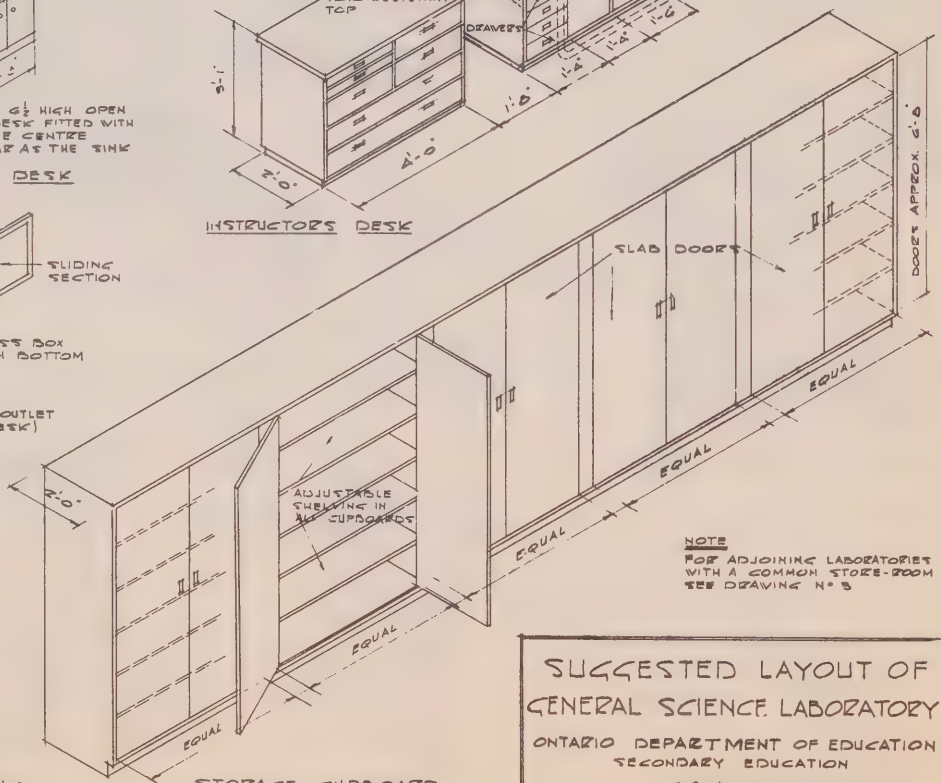
(FOR USE OVER FUME OUTLET AT INSTRUCTOR'S DESK)


HOT AND COLD WATER 12" HIGH GOOSENECKS
ACID RESISTANT SINK 10"x14"x7" DEEP AT WINDOW END OF INSTRUCTOR'S DESK
DUCT FOR FAN TO BE INSTALLED AND EXHAUST CARRIED CLEAR OF ANY OPENING TO THE BUILDING BY BUILDING CONTRACTOR
ACCESS TO PLUMBING
GAS COCKS SHOULD NOT EXTEND ABOVE TOP SURFACE OF TABLE
FUME OUTLET
GAS
REMOVABLE APPARATUS SUPPORT RODS WITH ADJUSTABLE BAR
SHELF
ACID RESISTANT TOP
DRAWERS
3'-1"
2'-0"
4'-0"
1'-0"
1'-4"
1'-6"

INSTRUCTORS DESK



REAGENT SHELVING



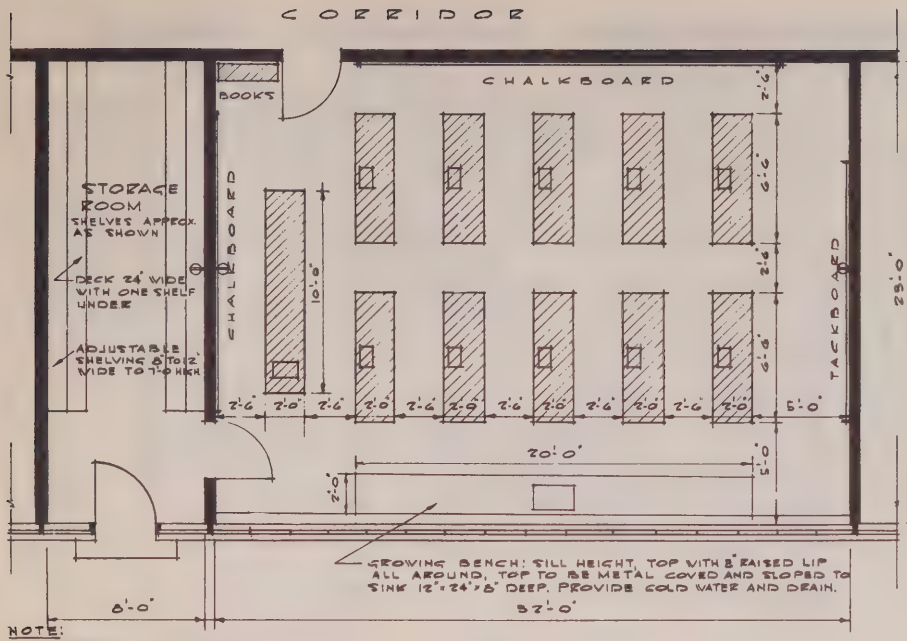
STORAGE CUPBOARD

NOTE
FOR ADJOINING LABORATORIES WITH A COMMON STORE-ROOM SEE DRAWING N° 5

SUGGESTED LAYOUT OF GENERAL SCIENCE LABORATORY

ONTARIO DEPARTMENT OF EDUCATION
SECONDARY EDUCATION

APPROVED BY A.S. Hoppe SUPERINTENDENT
AUG 1951
DRAWING N° 4



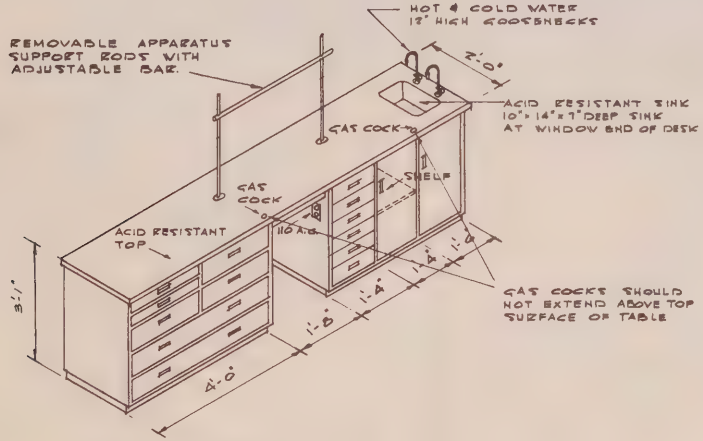
NOTE

- FURNITURE INDICATED ▨ IS NOT USUALLY INCLUDED IN THE BUILDING CONTRACT.
- ALL NECESSARY GAS, WATER, DRAINS AND ELECTRIC CONNECTIONS SHOULD BE RUN TO EACH ITEM CONCERNED AND CAREFULLY LOCATED AND INSTALLED BY THE BUILDING CONTRACTOR.
- IT IS ESSENTIAL THAT FURNITURE CAN BE READILY INSTALLED WITHOUT DAMAGE OR CUTTING.
- ⊖ ELECTRIC CONVENIENCE OUTLET.
- IF THE AGRICULTURE ROOM IS ADJACENT TO A SCIENCE OR PHYSICS ROOM, THE STORAGE ROOM MAY BE SHARED IN COMMON AND A DOOR PROVIDED.

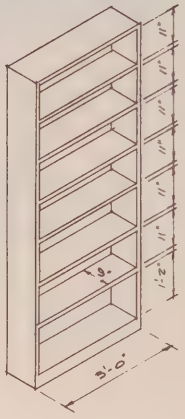
NOTE:
IF ON GROUND FLOOR GRADE ENTRANCE TO STORAGE ROOM IS DESIRABLE, IT MAY BE OMITTED IF THE AGRICULTURE ROOM IS CONVENIENTLY LOCATED TO ONE OF THE CORRIDOR EXITS FROM THE BUILDING.

FLOOR PLAN

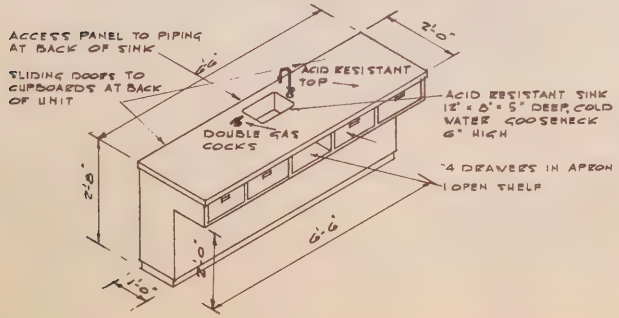
SCALE IN FEET 0 1 2 3 4 5 6 7 8 9 10



INSTRUCTORS DESK



BOOKSHELVES

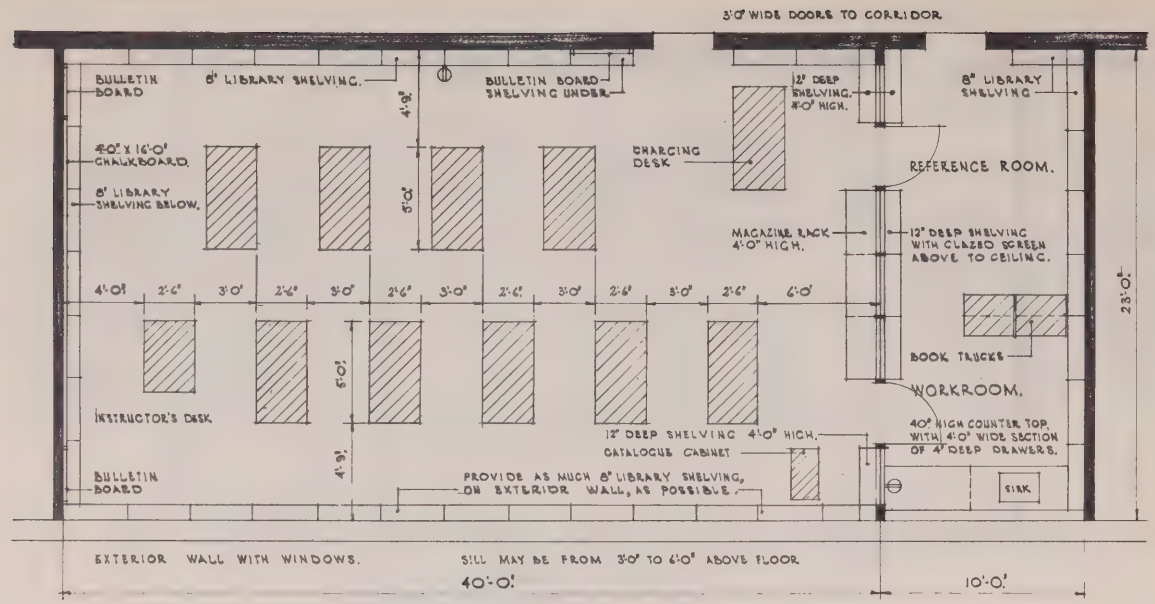


PUPILS' DESK

SUGGESTED LAYOUT OF AGRICULTURE ROOM

ONTARIO DEPARTMENT OF EDUCATION
VOCATIONAL EDUCATION BRANCH

APPROVED BY K. S. Piatti DIRECTOR
JUNE 1951 DRAWING NO. 7


CORRIDOR.
3'-0" WIDE DOORS TO CORRIDOR
BULLETIN BOARD
8" LIBRARY SHELVING.
BULLETIN BOARD SHELVING UNDER
12" DEEP SHELVING, 4'-0" HIGH.
8" LIBRARY SHELVING
4'-0" X 16'-0" CHALKBOARD.
8" LIBRARY SHELVING BELOW.
CHARGING DESK
REFERENCE ROOM.
MAGAZINE RACK 4'-0" HIGH.
12" DEEP SHELVING WITH GLAZED SCREEN ABOVE TO CEILING.
23'-0"
BOOK TRUCKS
WORKROOM.
INSTRUCTOR'S DESK
12" DEEP SHELVING 4'-0" HIGH.
40" HIGH COUNTER TOP WITH 4'-0" WIDE SECTION OF 4" DEEP DRAWERS.
CATALOGUE CABINET
BULLETIN BOARD
PROVIDE AS MUCH 8" LIBRARY SHELVING ON EXTERIOR WALL AS POSSIBLE
SINK
EXTERIOR WALL WITH WINDOWS.
SILL MAY BE FROM 3'-0" TO 6'-0" ABOVE FLOOR
40'-0"
10'-0"
0 1 2 3 4 5 6 7 8 9 10
SCALE IN FEET.

FLOOR PLAN.

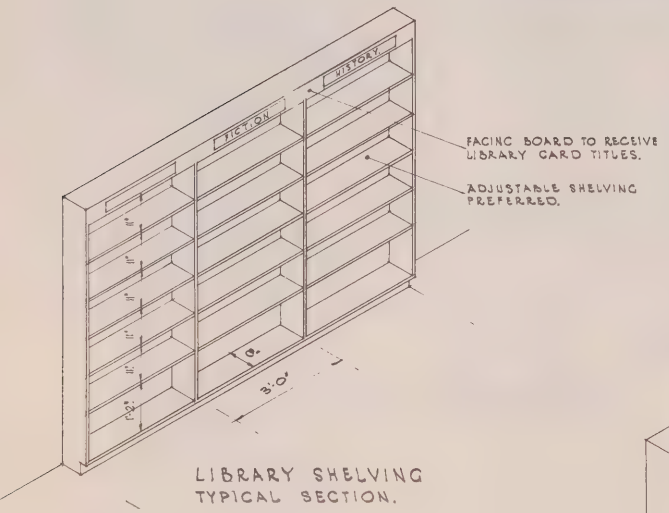
NOTE:

ALL ITEMS EXCEPT THOSE SHOWN THUS ——— SHOULD BE INCLUDED IN THE BUILDING CONTRACT.

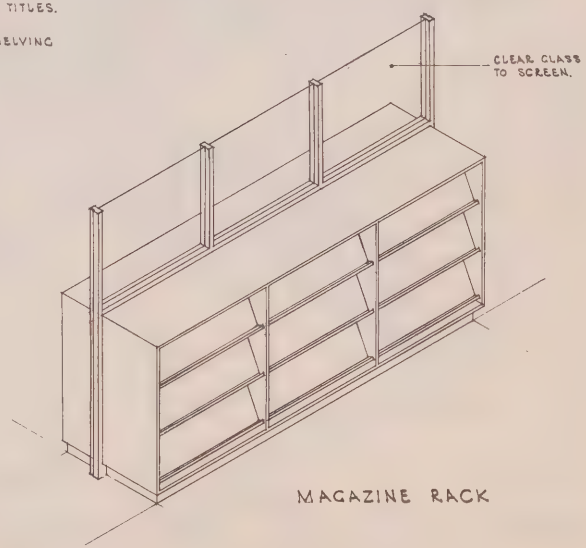
ELECTRIC CONVENIENCE OUTLET —— ——

THE REFERENCE ROOM AND WORKROOM IS DESIRABLE IN LARGER SCHOOLS. ———

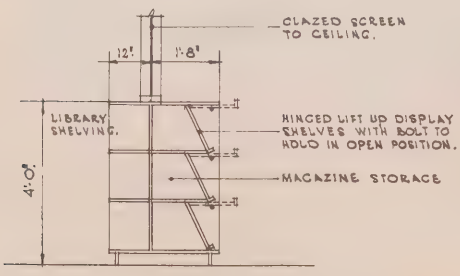
BOOK TRUCKS ARE UNITS OF DOUBLE SHELVING MOUNTED ON WHEELS.



LIBRARY SHELVING
TYPICAL SECTION.



MAGAZINE RACK



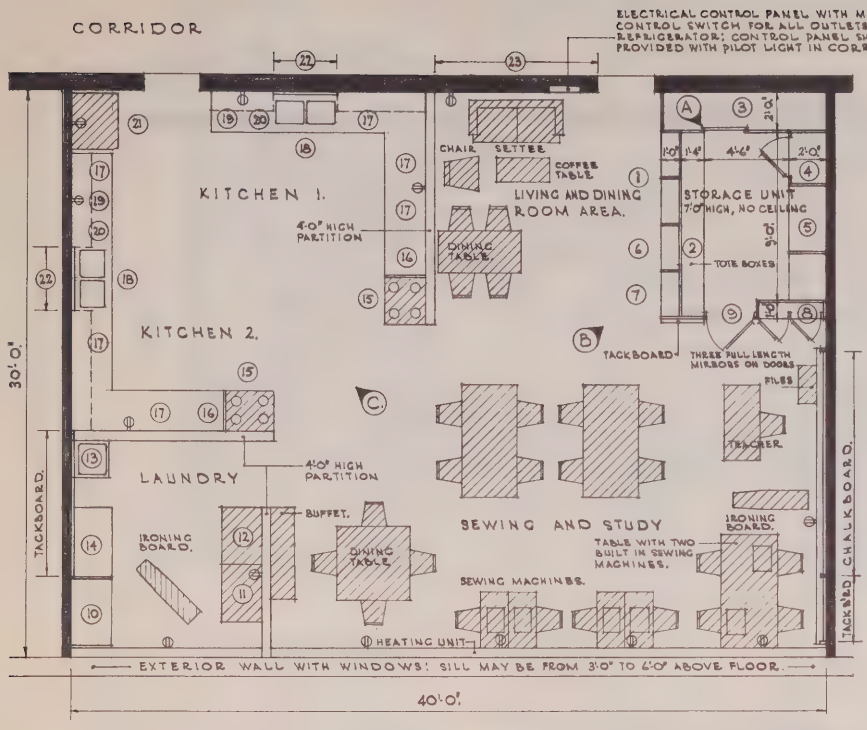
SECTION

MAGAZINE RACK AND SHELVING BEHIND.

SUGGESTED LAYOUT OF LIBRARY CLASSROOM.

ONTARIO DEPARTMENT OF EDUCATION
SECONDARY EDUCATION

APPROVED BY ~~X~~ E [illegible] SUPERINTENDENT
MAY 1960 DRAWING NO. 8



FLOOR PLAN.

NOTES

STORAGE UNIT.

1. 12 SHELVES FOR PUPILS' NOTEBOOKS, CUPBOARDS WITH DOORS ABOVE AND BELOW.
2. 4 OPEN ADJUSTABLE SHELVES FOR TOTE BOXES OR BUILT IN TOTE BOXES.
3. WARDROBE WITH SLIDING DOORS. PROVIDE TWO REMOVEABLE HANGING RODS, 3'-0" AND 5'-6" FROM FLOOR.
4. TEACHER'S CUPBOARD WITH COATRAIL AND SHELF OVER; DOOR FITTED WITH LOCK AND FULL LENGTH MIRROR.
5. OPEN SPACE FOR FOLDING BED WITH SHELVES ABOVE AND AT SIDE.
6. BOOKSHELVES AND MAGAZINE RACKS CUPBOARDS WITH DOORS ABOVE AND BELOW.
7. STORAGE UNIT WITH 3 ADJUSTABLE SHELVES
8. CUPBOARD WITH DOORS BELOW.
9. SUPPLY CUPBOARD: DOORS WITH LOCKS AND FULL LENGTH MIRRORS, PROVIDE 8 FULLY ADJUSTABLE SHELVES.
9. ENTRANCE DOOR FITTED WITH LOCK AND MIRROR

LAUNDRY

10. BROOM CUPBOARD WITH SPACE FOR TWO PORTABLE METAL IRONING BOARDS.
11. AUTOMATIC DRIER – VENT CONNECTION AS REQUIRED.
12. AUTOMATIC WASHER.
13. LAUNDRY TUB, PEDESTAL TYPE, NOT CLOSED IN BELOW, 36" TO RIM.
14. LAUNDRY CABINET WITH WORKTOP, DRAWERS AND CUPBOARD.

KITCHEN.

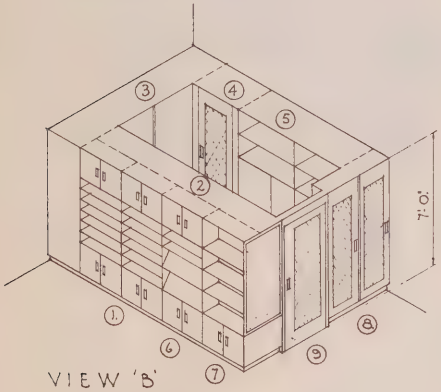
15. STOVE: GAS OR ELECTRIC, PROVIDE GAS AND/OR ELECTRIC CONNECTION.
16. TRAY RACK.
17. CUPBOARD WITH ONE LOOSE SHELF OR PULL OUT RACK.
18. SINK WITH VENTILATED CUPBOARD SMALL SHELF AND TOWEL RACK BELOW.
19. PULL OUT TOWEL RACK; VENTILATED.
20. DRAWERS – TOP DRAWER 4", SECOND DRAWER 6", BOTTOM TWO DRAWERS EQUAL.
21. REFRIGERATOR, ALLOW 3'0" REFRIGERATORSPACE
22. OVER SINK – BULLETIN BOARD, CONCEALED LIGHT.

LIVING AND DINING ROOM.

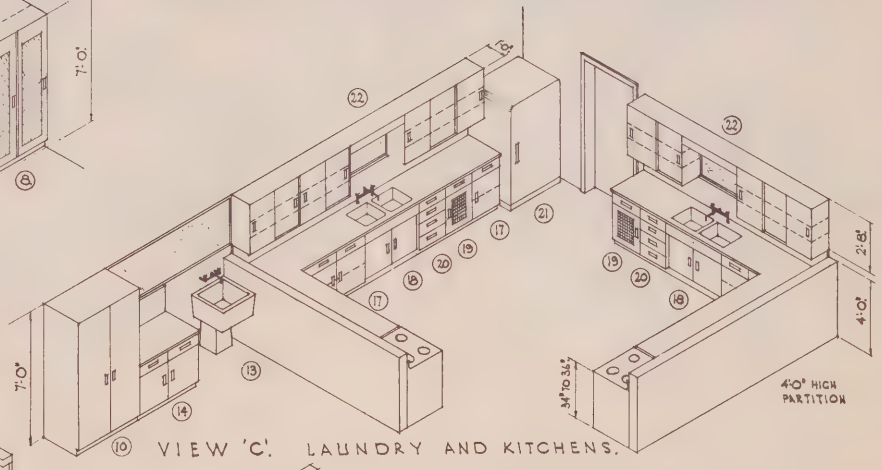
23. WALL ON LIVING ROOM SIDE TO BE KEPT CLEAR TO PERMIT PICTURE HANGING.

GENERAL NOTES.

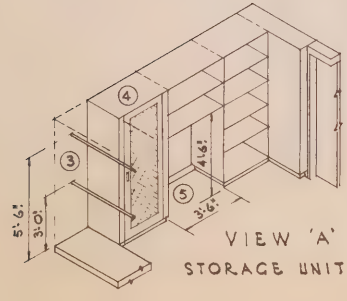
— ALL ITEMS EXCEPT THOSE SHOWN SHOULD BE INCLUDED IN THE BUILDING CONTRACT.
— MECHANICAL AND ELECTRICAL SERVICES SHOULD BE BROUGHT TO ALL EQUIPMENT THAT REQUIRES SAME BY THE BUILDING CONTRACTOR.
⊕ ELECTRIC CONVENIENCE OUTLET.



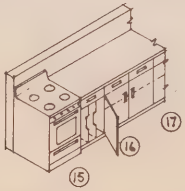
VIEW 'B'
STORAGE UNIT.



VIEW 'C'. LAUNDRY AND KITCHENS.



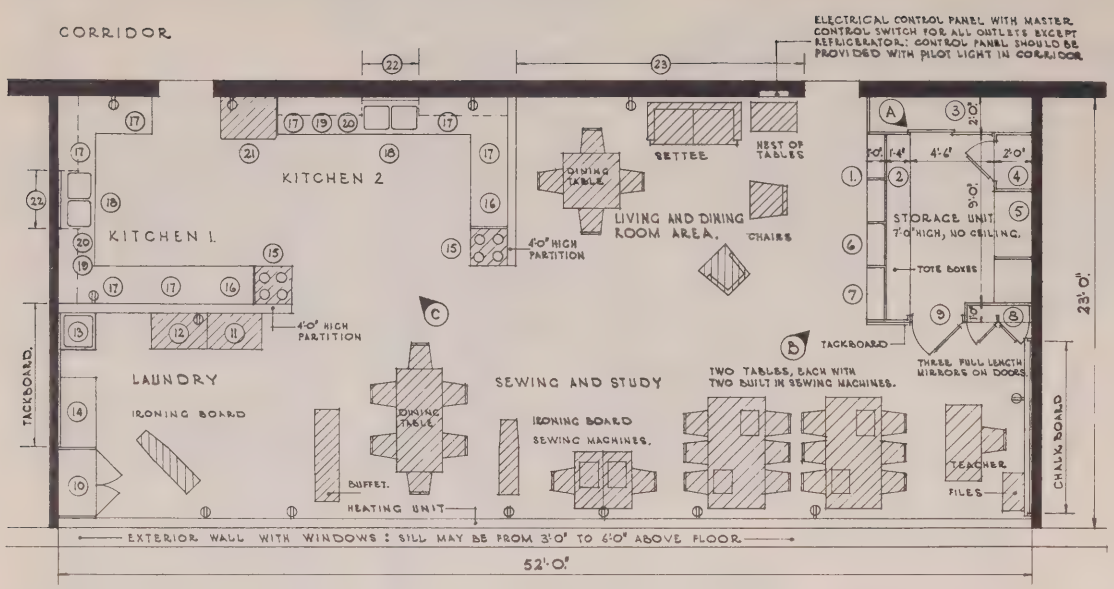
VIEW 'A'
STORAGE UNIT.



KITCHEN 2, UNITS 15, 16 AND 17.

SUGGESTED LAYOUT OF
HOME ECONOMICS ROOM
1200 SQ. FT. (APPROX.)
ONTARIO DEPARTMENT OF EDUCATION

APPROVED BY [signature] SUPERINTENDENT
JUNE 1962. DRAWING Nº 9.



FLOOR PLAN.

0 1 2 3 4 5 6 7 8 9 10

SCALE IN FEET.

NOTES

STORAGE UNIT.

1. 12 SHELVES FOR PUPILS' NOTEBOOKS, CUPBOARDS WITH DOORS ABOVE AND BELOW.
2. 4 OPEN ADJUSTABLE SHELVES FOR TOTE BOXES: OR BUILT IN TOTE BOXES.
3. WARDROBE WITH SLIDING DOORS, PROVIDE TWO REMOVEABLE HANGING RODS, 3'-0" AND 5'-6" FROM FLOOR.
4. TEACHER'S CUPBOARD WITH CORKRAIL AND SHELF OVER; DOOR FITTED WITH LOCK AND FULL LENGTH MIRROR.
5. OPEN SPACE FOR FOLDING BED WITH SHELVES ABOVE AND AT SIDE.
6. BOOK SHELVES AND MAGAZINE RACKS CUPBOARDS WITH DOORS ABOVE AND BELOW.
7. STORAGE UNIT WITH 3 ADJUSTABLE SHELVES CUPBOARD WITH DOORS BELOW.
8. SUPPLY CUPBOARD: DOORS WITH LOCK AND FULL LENGTH MIRRORS. PROVIDE 8 FULLY ADJUSTABLE SHELVES.
9. ENTRANCE DOOR FITTED WITH LOCK AND MIRROR

LAUNDRY

10. BROOM CUPBOARD WITH SPACE FOR TWO PORTABLE METAL IRONING BOARDS.
11. AUTOMATIC DRIER - VENT CONNECTION AS REQUIRED.
12. AUTOMATIC WASHER.
13. LAUNDRY TUB, PEDESTAL TYPE, NOT CLOSED IN BELOW, 36" TO RIM.
14. LAUNDRY CABINET WITH WORKTOP, DRAWERS AND CUPBOARD.

KITCHEN.

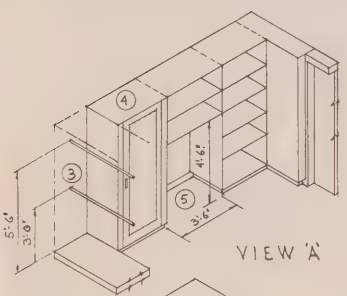
15. STOVE: GAS OR ELECTRIC, PROVIDE GAS AND/OR ELECTRIC CONNECTION.
16. TRAY RACK.
17. CUPBOARD WITH ONE LOOSE SHELF OR PULL OUT RACK.
18. SINK WITH VENTILATED CUPBOARD SMALL SHELF AND TOWEL RACK BELOW.
19. PULL OUT TOWEL RACK; VENTILATED.
20. DRAWERS - TOP DRAWER 4", SECOND DRAWER 6", BOTTOM TWO DRAWERS EQUAL.
21. REFRIGERATOR, ALLOW 3'-0" REFRIGERATOR SPACE
22. OVER SINK - BULLETIN BOARD, CONCEALED LIGHT.

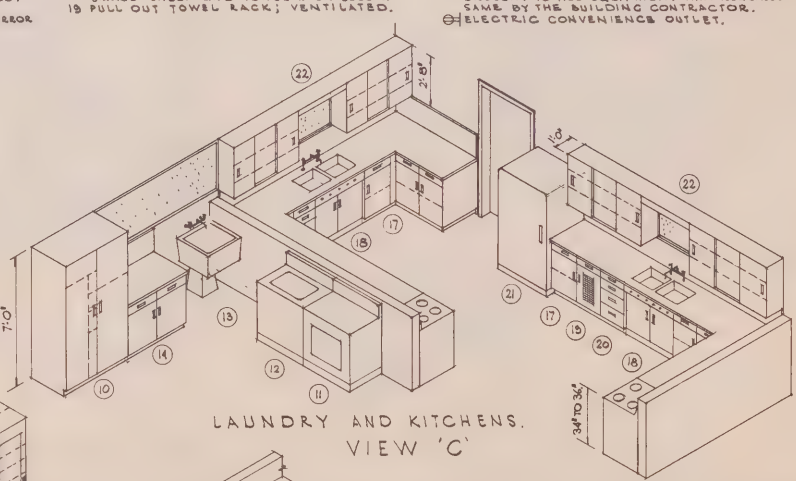
LIVING AND DINING ROOM.

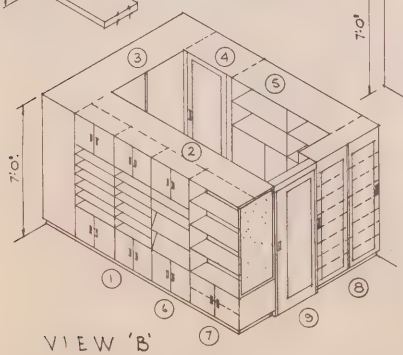
23. WALL ON LIVING ROOM SIDE TO BE KEPT CLEAR TO PERMIT PICTURE HANGING.

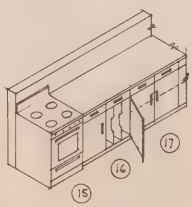
GENERAL NOTES.

— ALL ITEMS EXCEPT THOSE SHOWN ▨ SHOULD BE INCLUDED IN THE BUILDING CONTRACT.
— MECHANICAL AND ELECTRICAL SERVICES SHOULD BROUGHT TO ALL EQUIPMENT THAT REQUIRES SAME BY THE BUILDING CONTRACTOR.
⊖ ELECTRIC CONVENIENCE OUTLET.



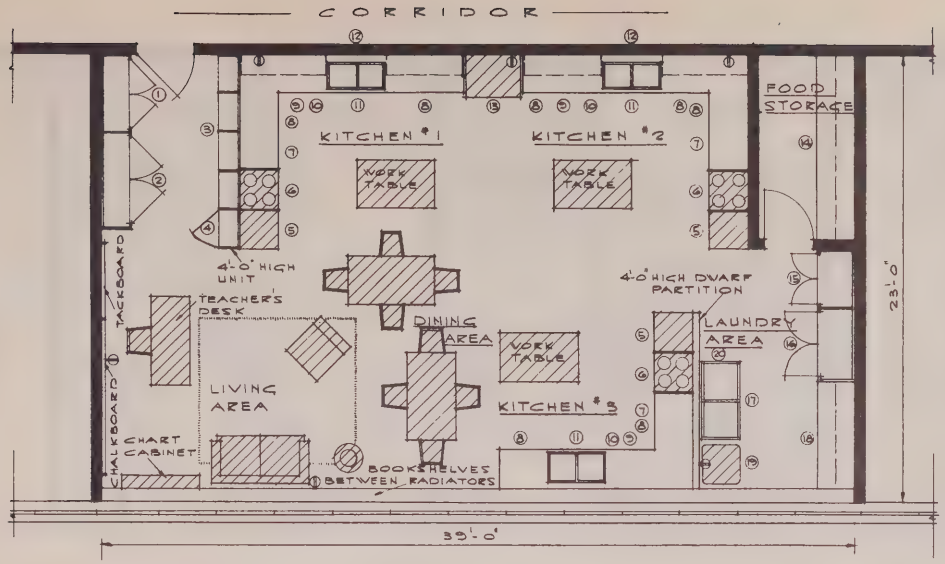






SUGGESTED LAYOUT OF HOME ECONOMICS ROOM
1200 SQ. FT. (APPROX.)
ONTARIO DEPARTMENT OF EDUCATION

APPROVED BY ..... DIRECTOR
JUNE 1962. DRAWING No 10



NOTES:

1. CUPBOARD, 3'-6" WIDE, 4'-6" HIGH SPACE FOR FOLDING BED WITH SHELVES OVER.
2. CUPBOARD, FOR NIGHT SCHOOL STORAGE, ADJUSTABLE SHELVING.
3. 24 SECTIONS FOR PUPILS' NOTEBOOKS
4. 4 ADJUSTABLE SHELVES, FOR SMALL SUPPLIES.

KITCHEN

5. WORK SURFACE: MAY BE PART OF STOVE OR AN INDEPENDENT PORTABLE CABINET.
6. STOVE: GAS OR ELECTRIC, PROVIDE GAS OR ELECTRIC CONNECTION.
7. TRAY RACK.
8. CUPBOARD WITH ONE LOOSE SHELF.
9. PULL-OUT TOWEL RACK, VENTILATED.
10. DRAWERS - TOP DRAWER 4", SECOND DRAWER 6", BOTTOM 2 DRAWERS EQUAL.
11. SINK WITH VENTILATED CUPBOARD BELOW, NO SHELF.
12. OVER SINK - BULLETIN BOARD, CONCEALED LIGHT.
13. REFRIGERATOR - ALLOW 3'-0" REFRIG. SPACE.

FOOD STORAGE

14. DOOR WITH LOCK. DECK - 24" WIDE WITH ONE SHELF UNDER. ADJUSTABLE SHELVING ABOVE 6" TO 12" WIDE OVER ALL HEIGHT 7'-0".

LAUNDRY

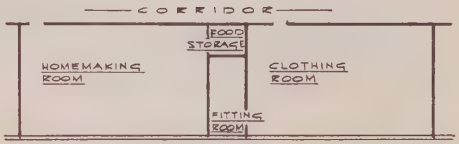
15. BROOM CUPBOARD.
16. TOWEL HANGING CUPBOARD 4'-0" WIDE WELL VENTILATED FOR DRYING. HEAT OR FORCED DRAUGHT NOT REQUIRED, FIT WITH RODS.
17. LAUNDRY TUBS; PEDESTAL TYPE; NOT CLOSED IN BELOW, 36" TO RIM.
18. LAUNDRY CABINET WITH WORK TOP, DRAWERS & CUPBOARDS.
19. WASHER - 3'-0" WASHER SPACE.
20. SPACE LEFT FOR FOOD TRUCK WHEN NOT IN USE.

FLOOR PLAN

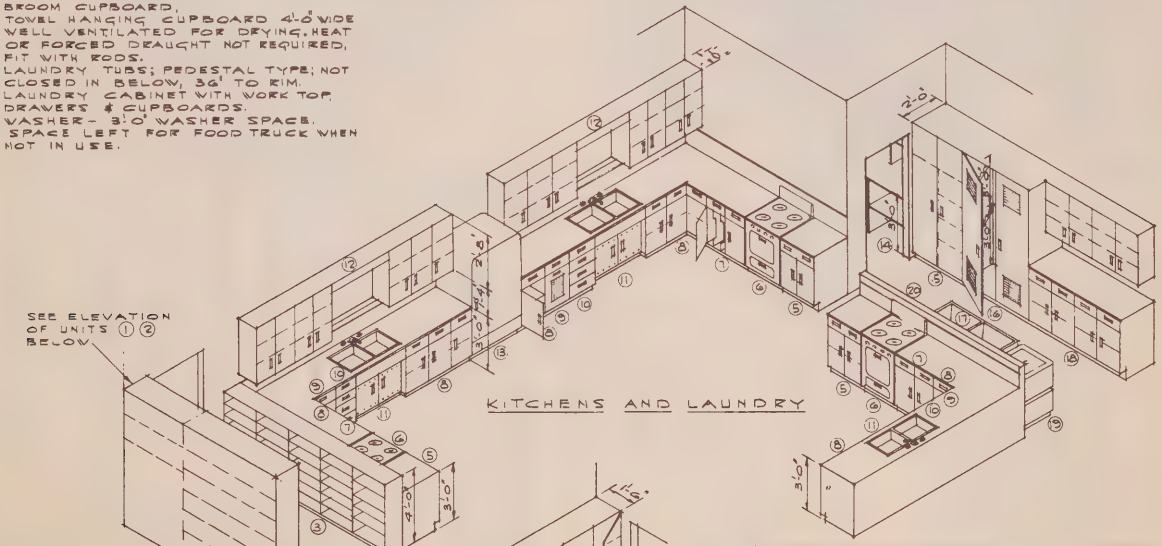
SCALE IN FEET 0 1 2 3 4 5 6 7 8 9 10

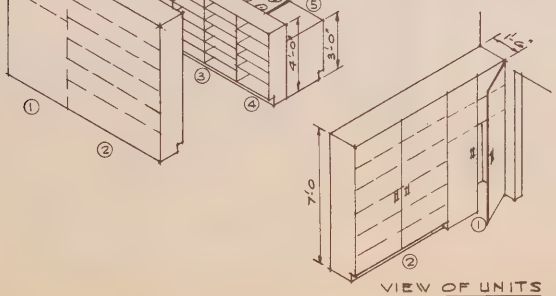
GENERAL NOTES:

- ALL ITEMS EXCEPT THOSE SHOWN ▨ SHOULD BE INCLUDED IN THE BUILDING CONTRACT.
- ELECTRIC POWER OR GAS SHOULD BE BROUGHT TO STOVE LOCATIONS BY BUILDING CONTRACTOR.
- ⊖ ELECTRIC CONVENIENCE OUTLET.



ARRANGEMENT WHEN HOMEMAKING ROOM AND CLOTHING ROOM ADJOIN. SEE DRAWING Nº 15 FOR DETAIL.

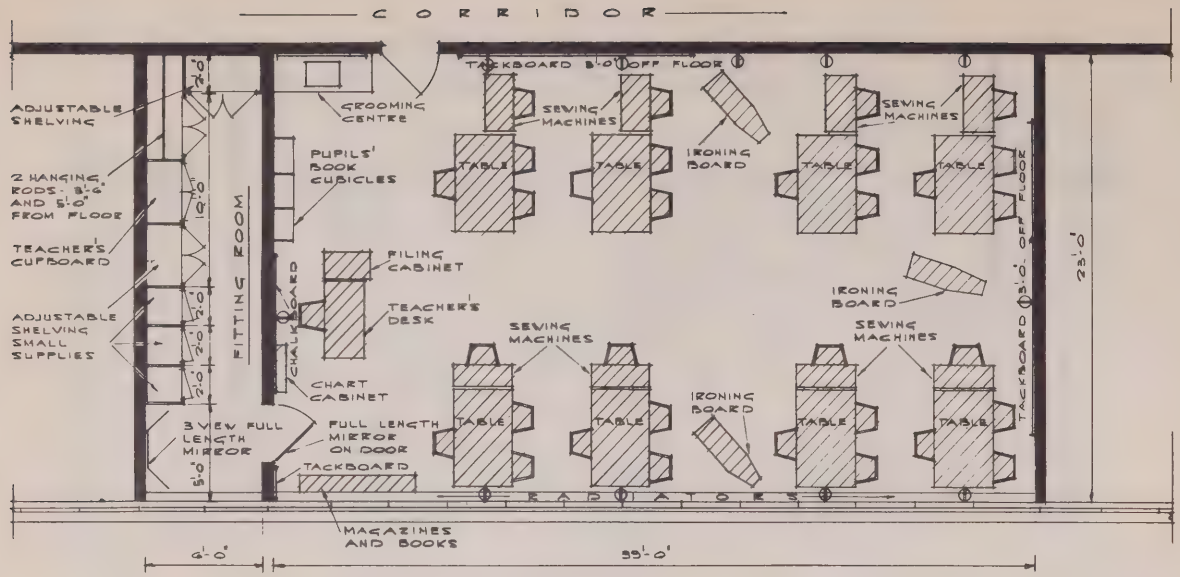




SUGGESTED LAYOUT OF HOMEMAKING ROOM

ONTARIO DEPARTMENT OF EDUCATION
SECONDARY EDUCATION

APPROVED BY R. A. Beattie SUPERINTENDENT
SEPT. 1952 DRAWING Nº 13



FLOOR PLAN

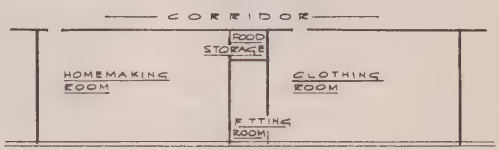
SCALE IN FEET 0 1 2 3 4 5 6 7 8 9 10

NOTE:

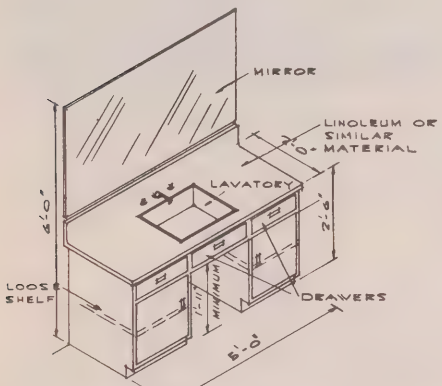
— ALL ITEMS EXCEPT THOSE SHOWN ▨ SHOULD BE INCLUDED IN THE BUILDING CONTRACT.

⊖ ELECTRIC CONVENIENC OUTLET.

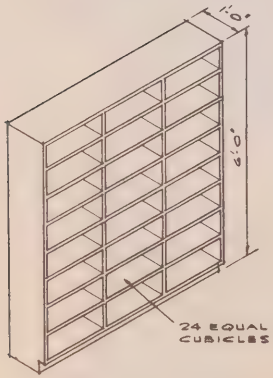
— LOCKS ON CUPBOARDS IN FITTING ROOM ARE NOT REQUIRED.



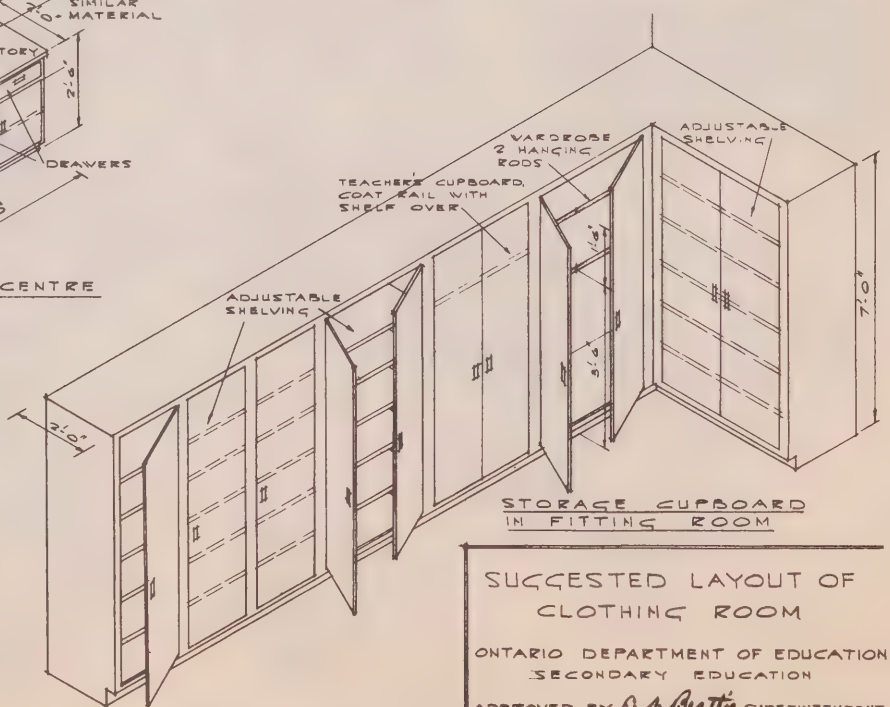
ARRANGEMENT WHEN HOMEMAKING ROOM AND CLOTHING ROOM ADJOIN. SEE DRAWING Nº 15 FOR DETAIL.



GROOMING CENTRE



PUPILS' BOOK CUBICLES



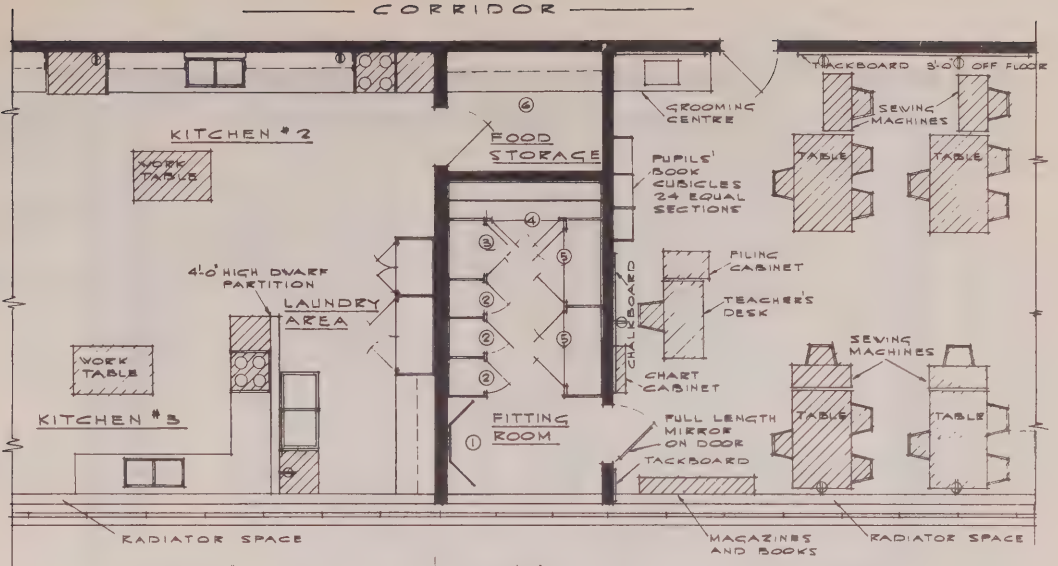
STORAGE CUPBOARD IN FITTING ROOM

SUGGESTED LAYOUT OF CLOTHING ROOM

ONTARIO DEPARTMENT OF EDUCATION
SECONDARY EDUCATION

APPROVED BY R. B. Beattie SUPERINTENDENT

SEPT. 1952 DRAWING Nº 14



FLOOR PLAN

SCALE IN FEET 0 1 2 3 4 5 6 7 8 9 10

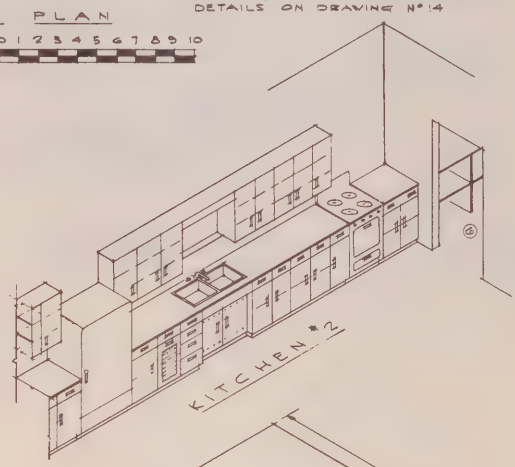
NOTES

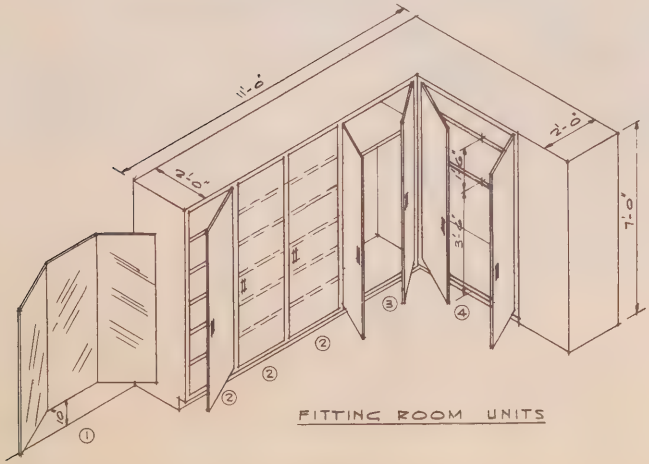
1. 3 VIEW FULL LENGTH MIRROR.
2. CUPBOARD - ADJUSTABLE SHELVING FOR SMALL SUPPLIES.
3. TEACHER'S CUPBOARD, ONE SHELF WITH HANGING ROD BELOW.
4. WARDROBE - 2 HANGING RODS, 3'-6" AND 5'-0" FROM FLOOR.
5. CUPBOARD - ADJUSTABLE SHELVING.
6. DECK - 24" WIDE WITH ONE SHELF UNDER, ADJUSTABLE SHELVING ABOVE 8' TO 12' WIDE - OVER ALL HEIGHT 7'-0"

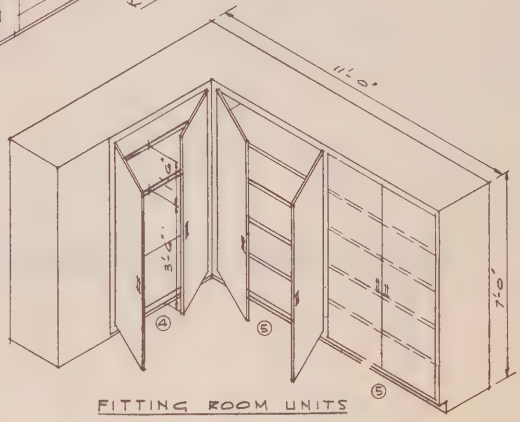
GENERAL NOTES

— ALL ITEMS EXCEPT THOSE SHOWN ▨ SHOULD BE INCLUDED IN THE BUILDING CONTRACT.

⊖ ELECTRIC CONVENIENCE OUTLET.



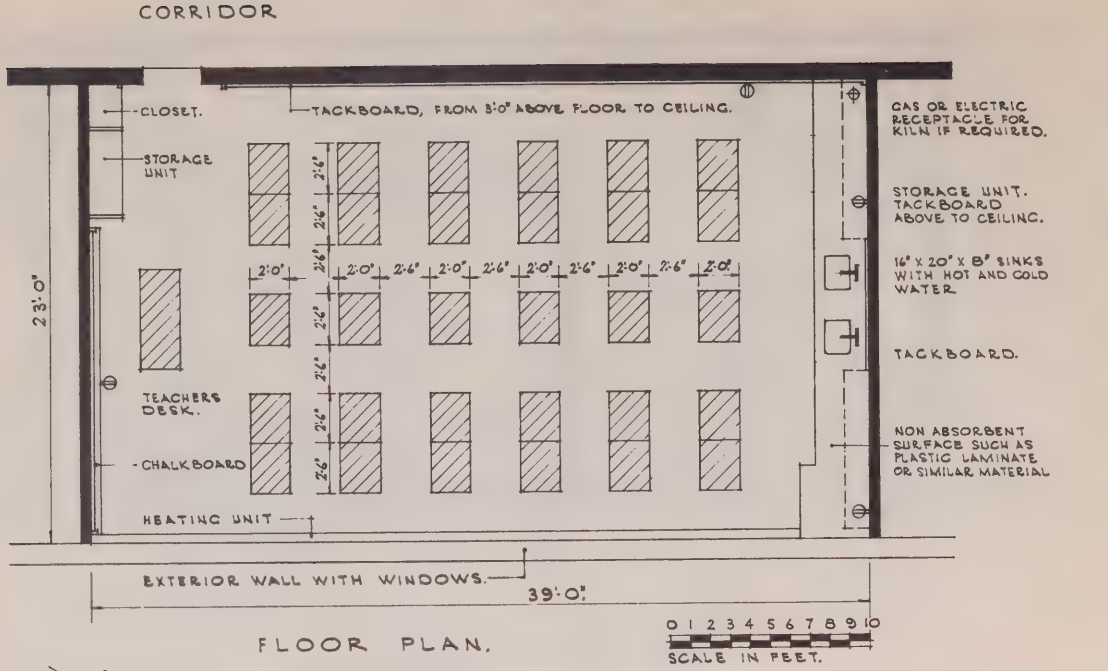




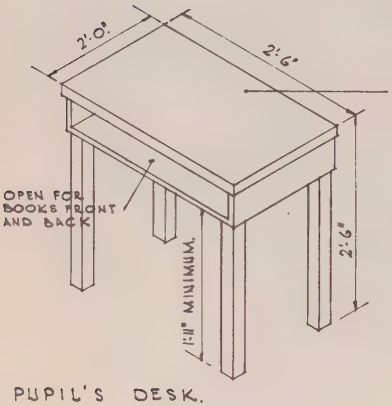
SUGGESTED LAYOUT WHEN HOMEMAKING ROOM AND CLOTHING ROOM ADJOIN

ONTARIO DEPARTMENT OF EDUCATION
SECONDARY EDUCATION

APPROVED BY R. S. Beattie SUPERINTENDENT
SEPT. 1952 DRAWING N° 15



FLOOR PLAN.

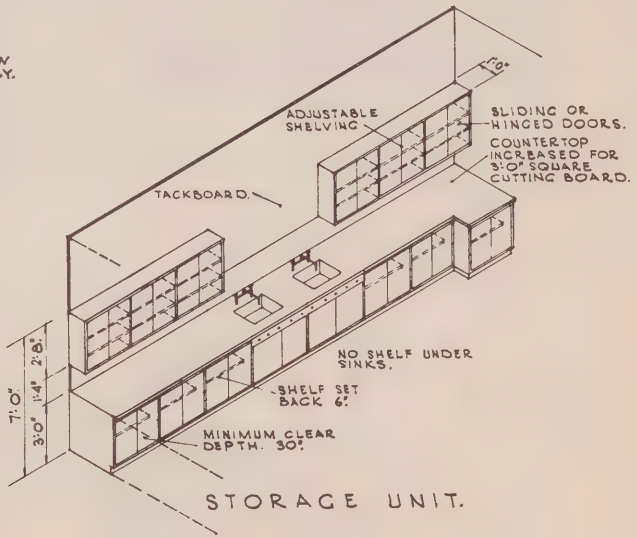

2'-0"
2'-6"
NON ABSORBENT SURFACE SUCH AS PLASTIC LAMINATE OR SIMILAR MATERIAL.
OPEN FOR BOOKS FRONT AND BACK
ILLUSTRATION IS INTENDED TO SHOW DIMENSIONS ONLY.
2'-6"
13" MINIMUM.

PUPIL'S DESK.

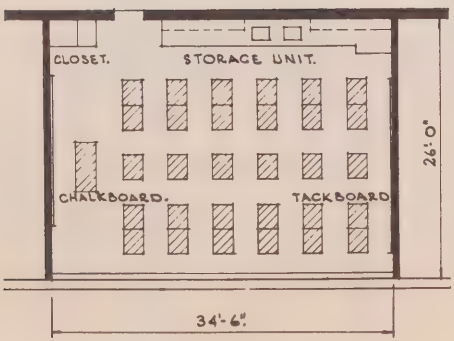
NOTES

— ALL ITEMS EXCEPT THOSE SHOWN SHOULD BE INCLUDED IN THE BUILDING CONTRACT.

ELECTRIC CONVENIENCE OUTLET.



STORAGE UNIT.



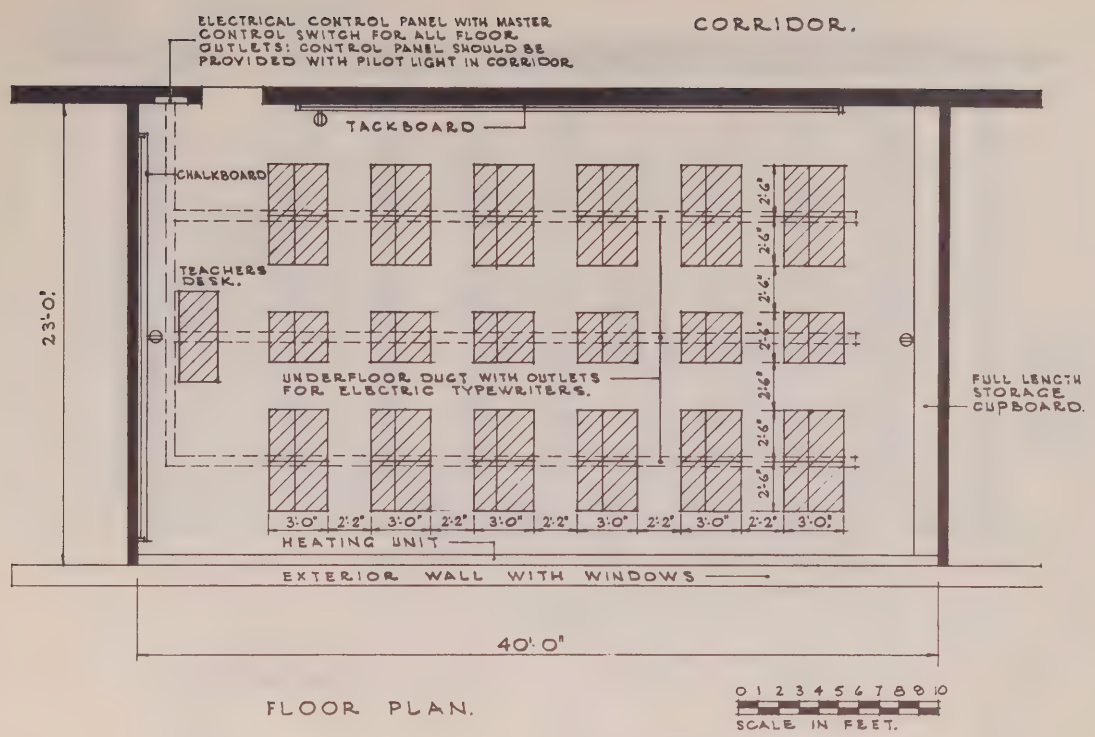
ALTERNATIVE FLOOR PLAN.

SUGGESTED LAYOUT OF ART ROOM.

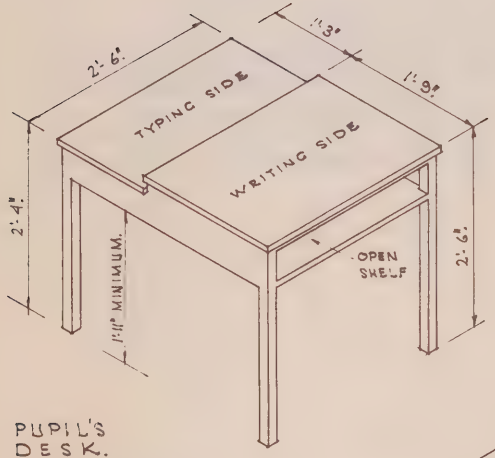
ONTARIO DEPARTMENT OF EDUCATION.

APPROVED BY [illegible] SUPERINTENDENT

JUNE 1962 DRAWING N° 16.



FLOOR PLAN.



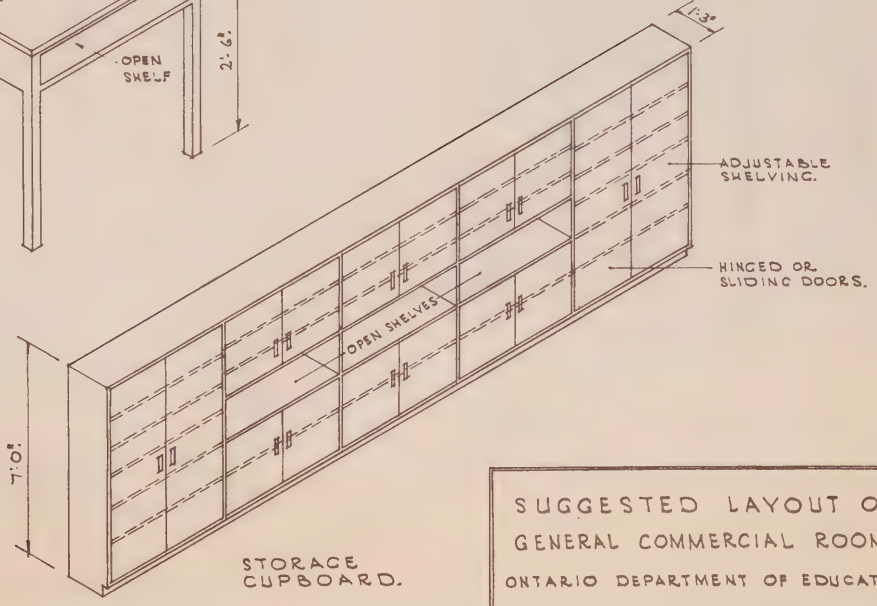
PUPIL'S DESK.

ILLUSTRATION IS INTENDED TO SHOW DIMENSIONS ONLY.

NOTES

— ALL ITEMS EXCEPT THOSE SHOWN SHOULD BE INCLUDED IN THE BUILDING CONTRACT

⊖ ELECTRIC CONVENIENCE OUTLET.



STORAGE CUPBOARD.

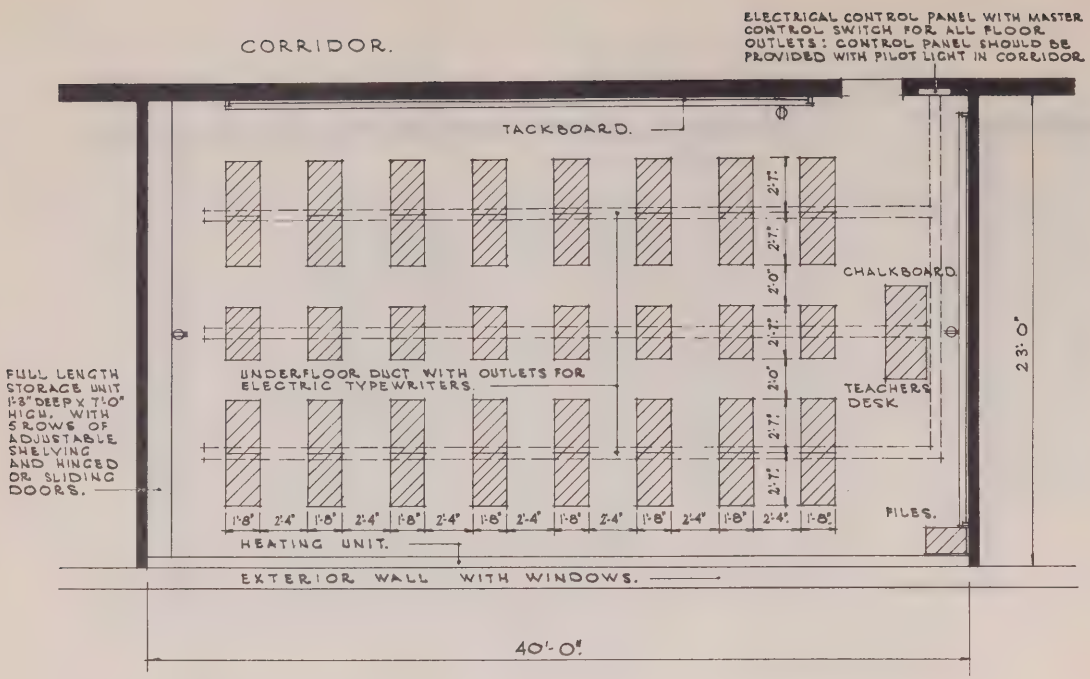
SUGGESTED LAYOUT OF GENERAL COMMERCIAL ROOM.

ONTARIO DEPARTMENT OF EDUCATION.

APPROVED BY ~~SUPERINTENDENT~~

JUNE 1962

DRAWING NO. 17.


CORRIDOR.
ELECTRICAL CONTROL PANEL WITH MASTER CONTROL SWITCH FOR ALL FLOOR OUTLETS: CONTROL PANEL SHOULD BE PROVIDED WITH PILOT LIGHT IN CORRIDOR
TACKBOARD.
CHALKBOARD.
TEACHER'S DESK.
FILES.
FULL LENGTH STORAGE UNIT 1'-8" DEEP X 7'-0" HIGH. WITH 5 ROWS OF ADJUSTABLE SHELVING AND HINGED OR SLIDING DOORS.
UNDERFLOOR DUCT WITH OUTLETS FOR ELECTRIC TYPEWRITERS.
HEATING UNIT.
EXTERIOR WALL WITH WINDOWS.
23'-0"
40'-0"
2'-7"
2'-0"
1'-8"
2'-4"

FLOOR PLAN.

0 1 2 3 4 5 6 7 8 9 10
SCALE IN FEET.

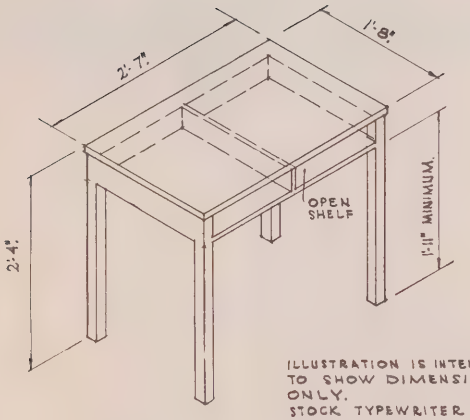


ILLUSTRATION IS INTENDED TO SHOW DIMENSIONS ONLY.
STOCK TYPEWRITER TABLES ARE AVAILABLE FROM FURNITURE SUPPLIERS.

PUPIL'S DESK.

NOTES

— ALL ITEMS EXCEPT THOSE SHOWN SHOULD BE INCLUDED IN THE BUILDING CONTRACT.

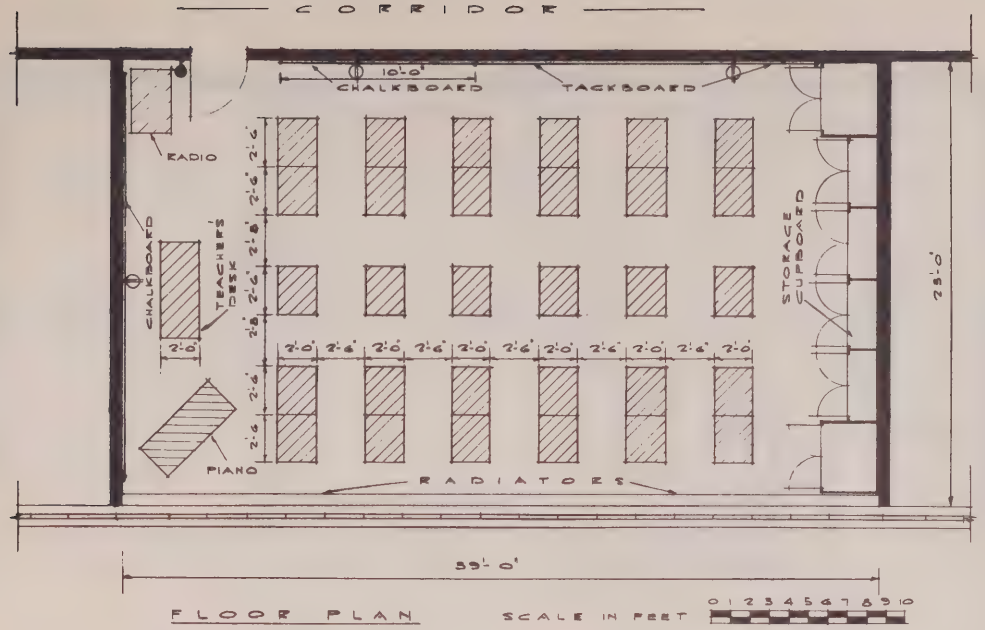
— NATURAL LIGHT SHOULD COME FROM THE RIGHT.

⊖ — ELECTRIC CONVENIENCE OUTLET.

SUGGESTED LAYOUT OF TYPING ROOM

ONTARIO DEPARTMENT OF EDUCATION

APPROVED BY ~~[illegible]~~ SUPERINTENDENT
JUNE 1962 DRAWING NO 18.



FLOOR PLAN

SCALE IN FEET 0 1 2 3 4 5 6 7 8 9 10

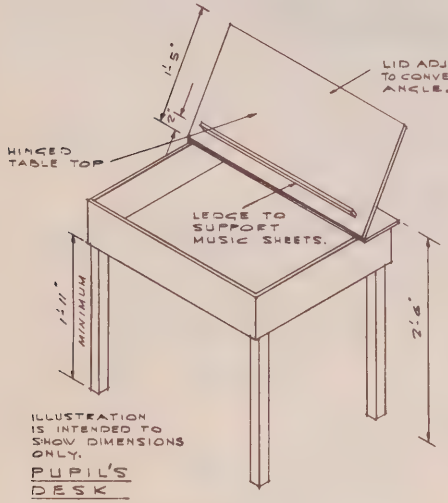


ILLUSTRATION IS INTENDED TO SHOW DIMENSIONS ONLY.

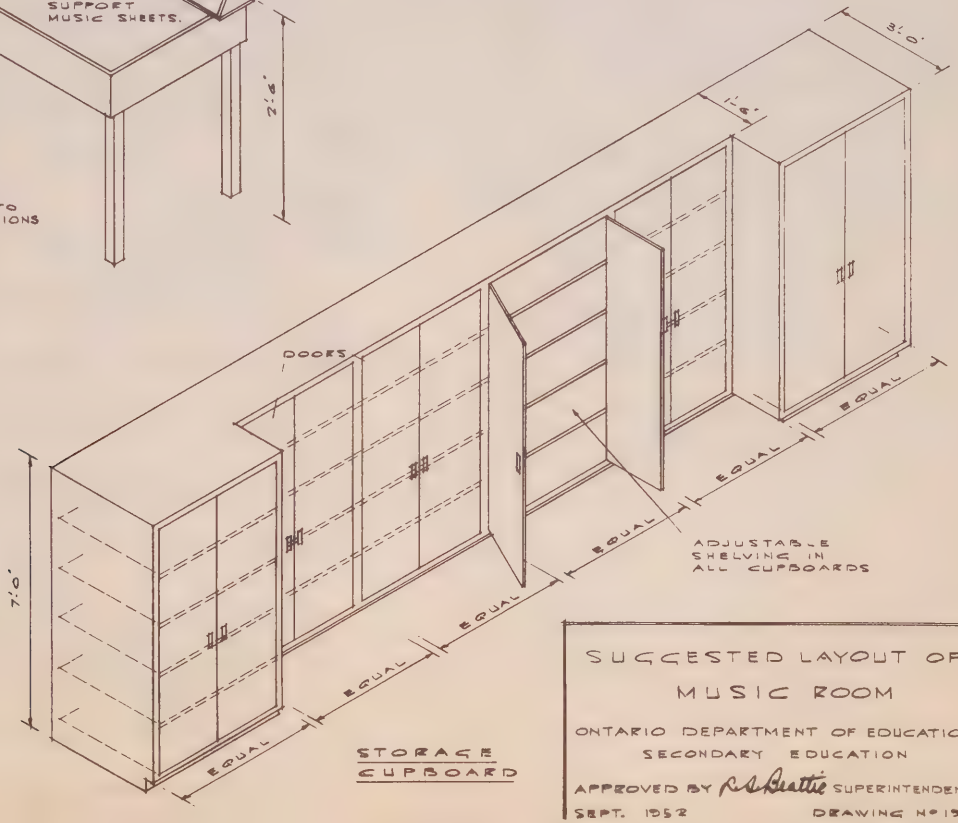
PUPIL'S DESK

NOTE

— ALL ITEMS EXCEPT THOSE SHOWN ▨ SHOULD BE INCLUDED IN THE BUILDING CONTRACT

— ⊖ ELECTRIC CONVENIENCE OUTLET

— ● SPECIAL RADIO OUTLET



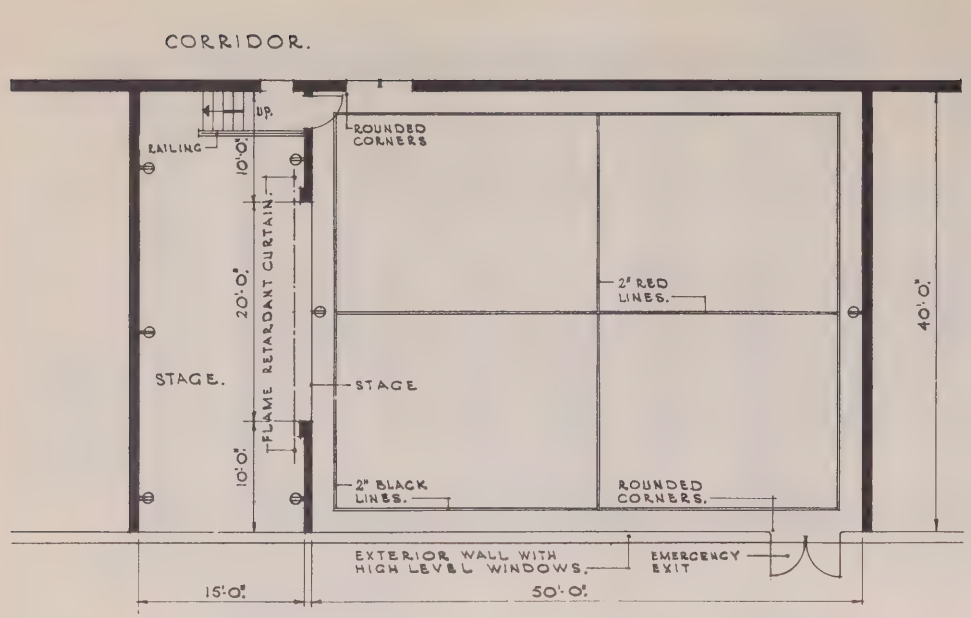
STORAGE CUPBOARD

SUGGESTED LAYOUT OF MUSIC ROOM

ONTARIO DEPARTMENT OF EDUCATION
SECONDARY EDUCATION

APPROVED BY R. S. Beattie SUPERINTENDENT

SEPT. 1952 DRAWING No 19



FLOOR PLAN.
MAXIMUM ACCOMMODATION. 290 CHAIRS.

0 2 4 6 8 10 12 14 16 18 20.
SCALE IN FEET.

NOTES

PLAYROOM

- CEILING HEIGHT: 10'-0" FOR ROOMS UP TO 1,000 SQ. FT.: 14'-6" FOR ROOMS OVER 1,000 SQ. FT.
- LINES ON FLOOR ARE NOT GAME LINES.
- WALLS AND CEILING FINISHES SHOULD BE SUITABLE FOR PLAYROOM PURPOSES.

STAGE

- CHAIRS STORED IN STAGE WING OR UNDER STAGE.
- STAGE OPENING MAY BE FULL WIDTH OF ROOM.

GENERAL.

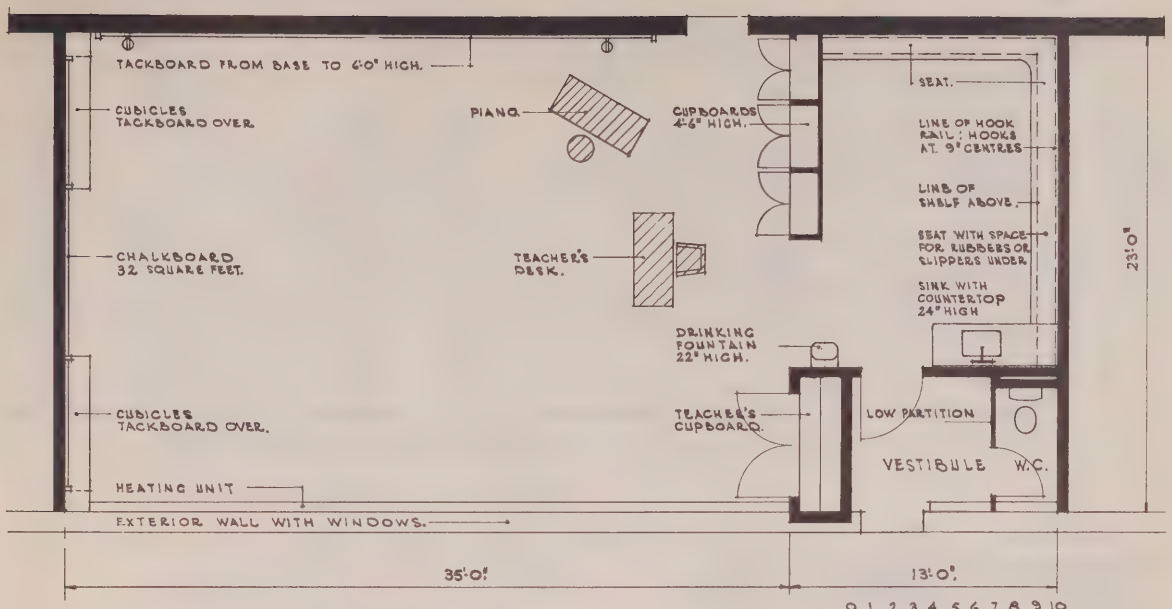
- THERE SHOULD BE NO PROJECTING PIERS OR RADIATORS BELOW 6'-0" ABOVE FLOOR.
- IF EXTERIOR DOORS ARE OMITTED SECONDARY MEANS OF EXIT MUST BE PROVIDED.
- ALL ITEMS EXCEPT THOSE SHOWN SHOULD BE INCLUDED IN THE BUILDING CONTRACT.
- ELECTRIC CONVENIENCE OUTLET.

SUGGESTED LAYOUT OF PLAYROOM

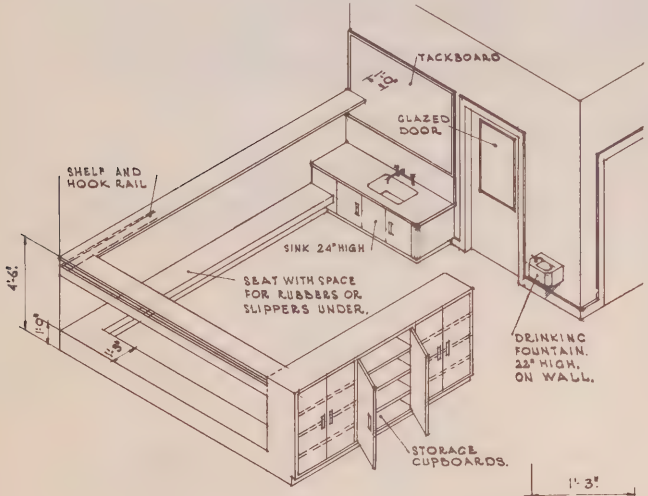
ONTARIO DEPARTMENT OF EDUCATION

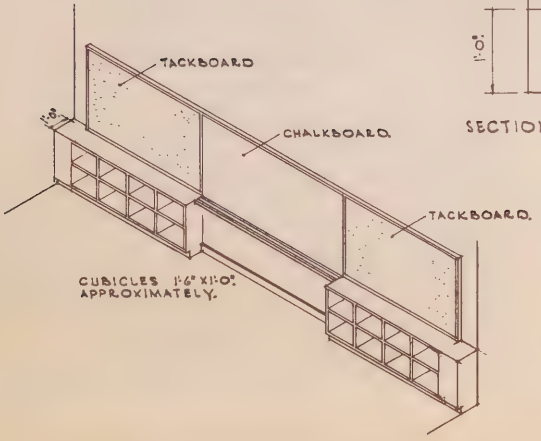
APPROVED BY [redacted] SUPERINTENDENT
JUNE 1962. DRAWING No 20

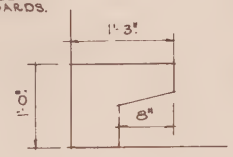
CORRIDOR.



FLOOR PLAN.







SECTION THROUGH SEAT.

GENERAL NOTES.

— NO CIRCLE ON FLOOR REQUIRED.

— THE PLAYGROUND OF A KINDERGARTEN SHOULD NOT BE LOCATED IN FRONT OF WINDOWS OF OTHER CLASSROOMS.

— DECORATION SHOULD BE BRIGHT AND CHEERFUL.

— ALL ITEMS EXCEPT THOSE SHOWN SHOULD BE INCLUDED IN THE BUILDING CONTRACT.

⊖ ELECTRIC CONVENIENCE OUTLET.

STORAGE CUPBOARDS.

— CUPBOARDS FOR TEACHING EQUIPMENT. PROVIDE THREE ADJUSTABLE SHELVES AND DOORS.

TEACHER'S CUPBOARD.

— TWO WIDE SHELVES AND FOUR NARROW SHELVES OVER. COAT HOOKS ON BACK OF DOORS.

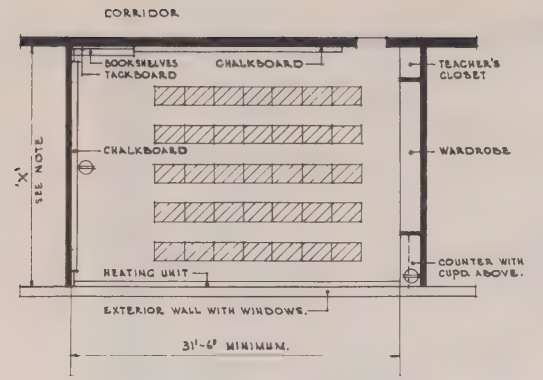
SUGGESTED LAYOUT OF KINDERGARTEN.

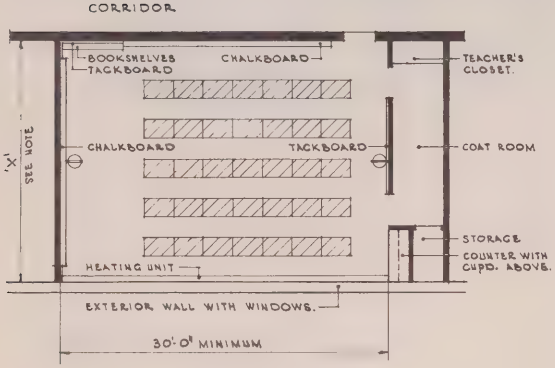
800 SQ.FT. (APPROX.)

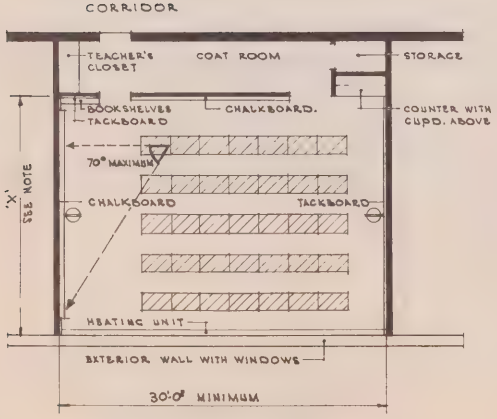
ONTARIO DEPARTMENT OF EDUCATION.

APPROVED BY G.A. Paterson SUPERINTENDENT

JUNE 1962. DRAWING Nº 21.







THE THREE EXAMPLES ILLUSTRATE THE POSSIBILITY OF A WIDE APPLICATION FOR THE SUGGESTIONS WHICH FOLLOW.

— 'X' WIDTH OF CLASSROOM SHALL BE AS REQUIRED TO GIVE THE MINIMUM CLEAR AREA OF 725 SQUARE FEET.

— THE MINIMUM LINEAR RUN OF CHALKBOARD IS 32'-0" AN ADDITIONAL 4'-0" OR MORE IS DESIRABLE.

— THE MAXIMUM DIRECT DISTANCE FROM A SEATED CHILD TO THE CHALKBOARD IS 28'-0". THE MINIMUM DISTANCE IS DETERMINED BY A MAXIMUM SIGHT ANGLE OF 70 DEGREES TO THE FAR END OF THE CHALKBOARD – SEE BOTTOM EXAMPLE.

— DESIRABLE CHALKRAIL HEIGHTS

GRADES	1	TO 3	–	28"
GRADES	4	TO 6	–	32"
GRADES	7	AND 8	–	36"

— IF NO OTHER SINK IS AVAILABLE NEARBY A SINK WITH COLD WATER SUPPLY IN THE PROJECT COUNTER IS DESIRABLE. COUNTER HEIGHT VARIES FROM 28" TO 32" TO SUIT GRADES.

— UNUSED WALL SURFACES MAY BE UTILIZED FOR TACKBOARD.

— BOOK SHELVES SHOULD BE PROVIDED.

— THE WARDROBE OR COAT ROOM SHOULD BE VENTILATED. COAT HOOK RAILS VARY FROM 3'-8" TO 4'-10" HIGH TO SUIT GRADES.

— ALL ITEMS EXCEPT THOSE SHOWN ▨ SHOULD BE INCLUDED IN THE BUILDING CONTRACT.

— ⊖ ELECTRIC CONVENIENCE OUTLET.

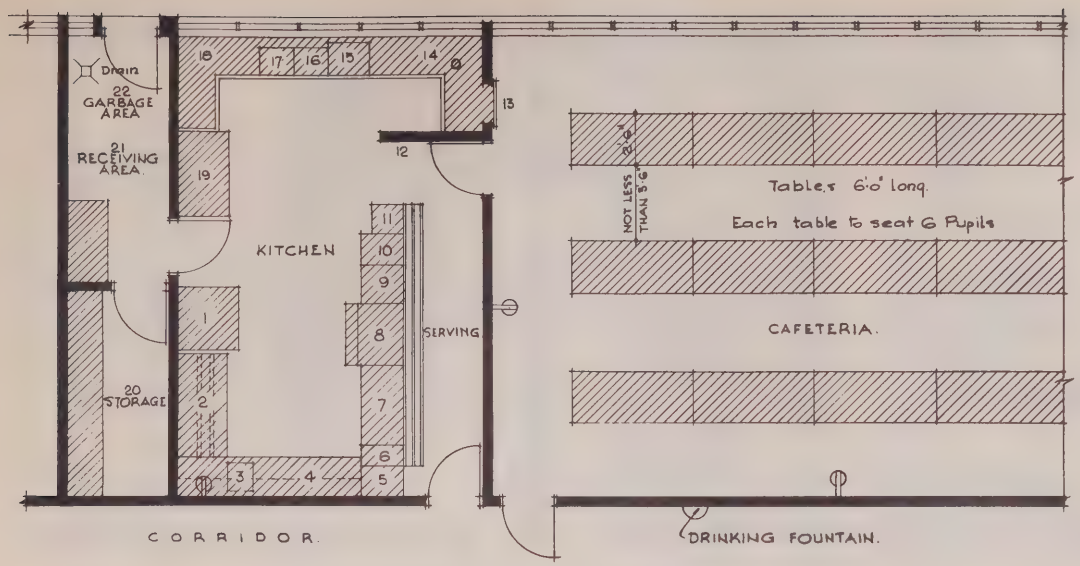
— SCALE IN FEET 0 2 4 6 8 10 12 14 16 18 20

SUGGESTED LAYOUTS ELEMENTARY SCHOOL CLASSROOMS

ONTARIO DEPARTMENT OF EDUCATION

APPROVED BY [signature] SUPERINTENDENT

JUNE 1962. DRAWING No 22.



PREPARATION

1. RANGE :- INSTITUTION TYPE 4 OR 6 BURNER, OR HOT TOP, OVEN BELOW.
2. COOK'S & BAKE TABLE :- 2'-6" WIDE 5'-6" LONG HARDWOOD TOP, DRAWERS, 30" WIDE & SHELF BELOW, POT RACK ABOVE.
3. SINK :- 12" x 18" x 12" DEEP.
4. SALAD SANDWICH TABLE :- 2'-0" WIDE, SHELF OVER 9" WIDE, MIXER 12-20 QUART COUNTER MODEL.

SERVING

5. TRAY STAND :- 1'-6" LONG, 2'-0" HIGH.
6. SILVERWARE :- 1'-0" LONG, SEPARATE CONTAINERS SHELVING BELOW.
7. SALADS, SANDWICHES, DESSERT :- 4'-0" LONG SHELVING BELOW.
8. HOT FOOD :- 3'-0" LONG, 2 PANS 10" x 20", ONE WELL 6" DIA. TWO WELLS 10" DIA. 9" HARDWOOD CUTTING BOARD, CLOSED DISH STORAGE BELOW.
9. MILK :- 2'-0" LONG, COUNTER TOP ONLY, MILK CASE STORAGE BELOW.
10. ICE CREAM :- 1'-6" LONG, 2 WELL UNIT, SELF CONTAINED COMPRESSOR.
11. CASHIER :- TABLE OR COUNTER 1'-6" x 1'-6" SHELF BELOW.

GENERAL.
- a. TWO 10" GLASS SHELVES 13" APART WITH 3" SNEEZE PLATE TO EXTEND OVER ITEMS 7 TO 9 INCLUSIVE.
- b. BREAK GLASS AT HOT TABLE FOR EXPANSION.
- c. 12" TRAY RAIL TO EXTEND OVER ITEMS 6 TO 11. INCLUSIVE.
- d. UNITS SHOULD BE 4" TO 6" OFF THE FLOOR TO PERMIT EASY CLEANING

WASHING

12. SCREEN :- 5'-0" HIGH TO HIDE SOILED DISHES
13. HATCH :- FLUSH WITH DISH TABLE-LIFT SHUTTER
14. SOILED DISH TABLE :- 16 SQ. FT. LIP AROUND FRONT EDGE & SILL OF HATCH - 6" DIA. GARBAGE OPENING WITH CONTAINER BELOW. 8" SPLASH BACK
15. POT SINK :- 18" x 24" x 14" DEEP.
16 & 17. DISH WASHING :- TWO SINKS 18" x 18" x 14" DEEP ALSO USE POT SINK FOR PRE-RINSE.
18. CLEAN DISH COUNTER :- 12 SQ. FT. LIP AROUND FRONT EDGE, DISH STORAGE BELOW.

GENERAL :-
- a. HOT WATER TEMPERATURE 140° F.
- b. A BOOSTER TO RAISE HOT WATER TEMPERATURE TO 180° IS DESIRABLE
- c. A MOBILE DISH TRUCK MAY BE PLACED IN THE CAFETERIA TO SUPPLEMENT THE DISH HATCH.

STORAGE

19. REFRIGERATED :- 40 CUBIC FEET SELF CONTAINED UNIT.
20. DRY STORAGE :- 50 SQ. FT. WITH 15" SHELVES & 21" PLATFORM FOR BAGS & CARTONS
21. RECEIVING AREA :- ABOUT 30 SQ FT. WITH A RECEIVING TABLE 2'-0" x 4'-0".
22. GARBAGE AREA :- ABOUT 25 SQ. FT. SPACE FOR THREE CANS, HOT & COLD WATER AND A FLOOR DRAIN WITH FLOOR GRADED TO DRAIN.

NOTES

FURNITURE AND EQUIPMENT INDICATED THUS

IS NOT USUALLY INCLUDED IN THE BUILDING CONTRACT.

ALL NECESSARY GAS, WATER, DRAINS, STEAM AND ELECTRIC CONNECTIONS SHOULD BE RUN TO EACH ITEM CONCERNED AND CAREFULLY LOCATED AND INSTALLED BY THE BUILDING CONTRACTOR

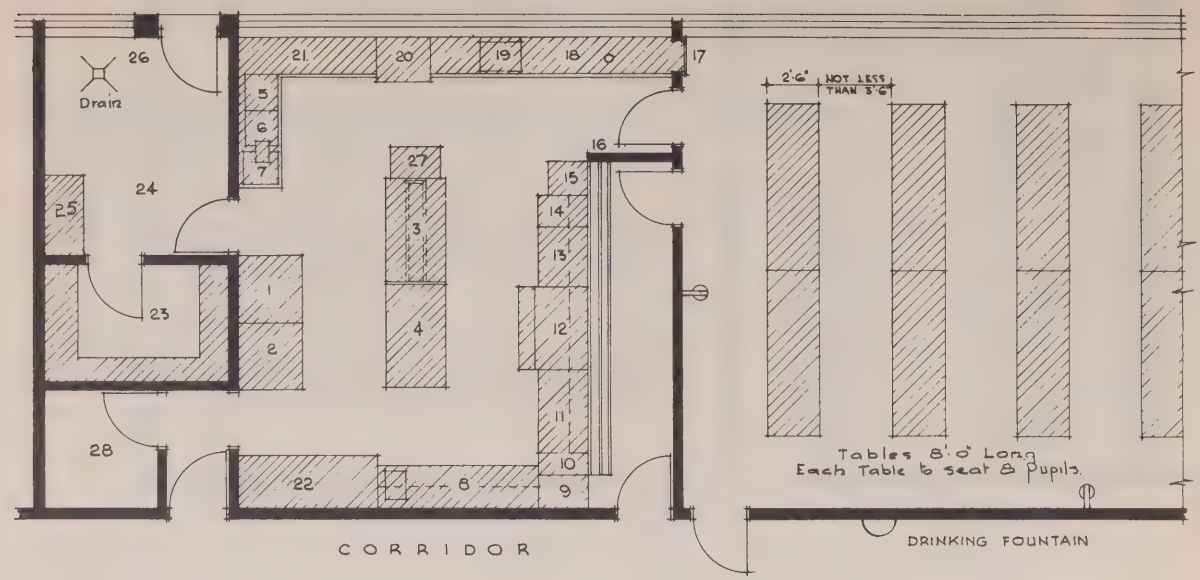
SUGGESTED LAYOUT OF CAFETERIA & KITCHEN

300 TO 500 PUPIL SCHOOL

ONTARIO DEPARTMENT OF EDUCATION

SECONDARY EDUCATION BRANCH

SEPT. 1955. DRAWING N° 23.



PREPARATION

1 & 2. RANGES :- INSTITUTION TYPE 4 TO 6 BURNER OR HOT TOP, OVEN BELOW.
3. COOKS TABLE :- 2'-6" x 5'-0". POT RACK OVER SHELVING & TRASH CAN SPACE BELOW
4. BAKERS TABLE :- 2'-6" x 5'-0" HARDWOOD TOP DRAWERS 30" WIDE & SHELF BELOW, 20 QUART, TABLE MODEL MIXER
5 & 6. SINKS :- 18" x 24" x 14" DEEP.
7. PEELER :- PEDESTAL TYPE, 15# CAPACITY, DRAIN TO SINK, CURB AT FLOOR.
8. SALAD, SANDWICH & DESSERT COUNTER :- 2'-0" WIDE, SINK 12" x 18" x 12" DEEP, SHELVING & DRAWERS BELOW.

SERVING

9. TRAY STAND :- 1'-6" LONG. 2'-0" HIGH.
10. SILVERWARE :- 1'-0" LONG WITH SEPARATE CONTAINERS, SHELVING BELOW.
11. SALADS, SANDWICHES & DESSERT :- 2'-0" x 4'-0". SHELVING BELOW.
12. HOT FOOD :- 2'-6" x 4'-0" WITH 9" CUTTING BOARD, 2 PANS 10" x 20". ONE WELL 6" DIA. 4 WELLS, 10" DIA. CLOSED DISH STORAGE BELOW.
13. MILK :- 3'-0" LONG, REFRIGERATED.
14. ICE CREAM :- 2 WELL UNIT, SELF-CONTAINED COMPRESSOR.
15. CASHIER :- TABLE OR COUNTER 1'-6" x 1'-6". SHELF BELOW.

GENERAL :- a. TWO 10" GLASS SHELVES 13" APART WITH 3" SNEEZE PLATE TO EXTEND OVER ITEMS 11 TO 14. INCLUSIVE.
b. BREAK GLASS AT HOT-TABLE FOR EXPANSION.
c. 12" TRAY RAIL TO EXTEND OVER ITEMS 10 TO 15 INCLUSIVE.
d. UNITS 4" TO 6" OFF FLOOR FOR EASY CLEANING.

WASHING

16. SCREEN :- 5'-0" HIGH TO HIDE SOILED DISHES.
17. HATCH :- FLUSH WITH DISH TABLE, LIFT-SHUTTER.
18. SOILED DISH COUNTER :- 24 SQ. FT. LIP AROUND FRONT EDGE AND SILL OF HATCH, 6" DIA. GARBAGE OPENING WITH CONTAINER BELOW 8" SPLASH BACK.
19. PRE-WASH SINK :- 24" x 24" x 12" DEEP, SPRAY NOZZLE.
20. DISHWASHER :- MANUAL SINGLE TANK, WATER TEMPERATURE 140° F.
21. CLEAN DISH COUNTER :- 14 SQ. FT. DISH STORAGE BELOW.

WASHING (Cont)

GENERAL :- a. HOT WATER IN GENERAL 140° F. THE DISHWASHER REQUIRES A BOOSTER TO RAISE TEMPERATURE TO 180° F. FOR FINAL RINSE & AIR DRYING.
b. A MOBILE DISH TRUCK MAY BE PLACED IN THE CAFETERIA TO SUPPLEMENT THE DISH HATCH.

STORAGE

22. REFRIGERATED :- 60 CU. FT. SELF CONTAINED UNIT.
23. DRY STORAGE :- 70 SQ. FT., 15" SHELVING AND 21" PLATFORMS FOR STORAGE OF BAGS AND CARTONS.
24. RECEIVING AREA :- ABOUT 50 SQ. FT.
25. RECEIVING TABLE :- 2'-0" x 4'-0".
26. GARBAGE AREA :- ABOUT 40 SQ. FT. SPACE FOR CANS, HOT & COLD WATER & A FLOOR DRAIN WITH THE FLOOR GRADED TO DRAIN.
27. TRUCK :- FOR HANDLING, RECEIVING AND SHIPPING.
28. WASHROOM :- FOR KITCHEN STAFF IF OTHER SUITABLE FACILITIES NOT AVAILABLE

NOTES

FURNITURE AND EQUIPMENT INDICATED THUS

IS NOT USUALLY INCLUDED IN THE BUILDING CONTRACT

ALL NECESSARY GAS, WATER, DRAINS, STEAM AND ELECTRIC CONNECTIONS SHOULD BE RUN TO EACH ITEM CONCERNED AND CAREFULLY LOCATED AND INSTALLED BY THE BUILDING CONTRACTOR.

ELECTRIC CONVENIENCE OUTLET FOR GENERAL USE.

1 0 1 2 3 4 5 6 7 8 9
SCALE IN FEET.

SUGGESTED LAYOUT OF CAFETERIA & KITCHEN

500 TO 800 PUPIL SCHOOL

ONTARIO DEPARTMENT OF EDUCATION
SECONDARY EDUCATION BRANCH.

SEPT. 1955. DRAWING Nº 24

PREPARATION

1 & 2. RANGES :- INSTITUTION TYPE 4 TO 6 BURNER OR HOT TOP, OVEN BELOW.
3. BAKE OVEN :- 2 DECKS.
4. OVEN RACK :- 2'-0" x 4'-0".
5. BAKERS TABLE :- 2'-6" x 6'-0", HARDWOOD TOP, SHELVING & BINS ON CASTERS BELOW.
6. MIXER :- 20 QT. PEDESTAL TYPE.
7. COOKS TABLE :- 2'-6" x 6'-0" SHELVING & TRASH CAN SPACE BELOW, SMALL SLICER TABLE MODEL.
8. VEGETABLE PREPARATION TABLE :- 2'-0" x 3'-0".
9 & 10. SINKS :- VEGETABLE PREPARATION, EACH 18" x 24" x 14" DEEP.
11. PEELER :- PEDESTAL TYPE WITH CURB, DRAIN TO SINK, 25 LB. CAPACITY.
12. SALAD, SANDWICH & DESSERT COUNTER :- 2'-0" x 9'-0" SINK 12" x 18" x 12" DEEP SHELVING & DRAWERS BELOW SHELF 9" WIDE ABOVE.

SERVING.

13. TRAY STAND :- 2'-6" LONG, 2'-0" DOUBLE STACK
14. SILVERWARE :- 1'-6" LONG, SEPARATE COMPARTMENTS
15. SALADS, SANDWICH & DESSERT :- 6'-0" LONG SHELVING BELOW.
16. HOT FOOD :- 4'-0" LONG WITH 9" CUTTING BOARD, 2 PANS, 10" x 20", 1 WELL 6" DIA. 4 WELLS 10" DIA. WARM DISH STORAGE WITH SLIDING DOORS BELOW
17. MILK :- 3'-0" LONG, REFRIGERATED.
18. ICE CREAM :- 3'-0" LONG, 4 WELL UNIT.
19. CASHIER :- TABLE OR COUNTER, 1'-6" x 1'-6" WITH SHELF BELOW.

GENERAL a. TWO 10" GLASS SHELVES 15" APART WITH 3" SNEEZE PLATE TO EXTEND OVER ITEMS 15 TO 18 INCLUSIVE.
b. BREAK GLASS AT HOT TABLE FOR EXPANSION.
c. 12" TRAY RAIL TO EXTEND OVER ITEMS 14 TO 19 INCLUSIVE.
d. UNITS 4" TO 6" OFF FLOOR FOR EASY CLEANING.
e. A SEPARATE MILK & ICE CREAM LINE & CASHIER MAY BE SET UP IN CAFETERIA.

WASHING

20. SCREEN :- 5'-0" HIGH TO HIDE SOILED DISHES.
21. HATCH :- FLUSH WITH DISH COUNTER LIFT SHUTTER
22. SOILED DISH COUNTER :- 34 SQ. FT. LIP AROUND FRONT EDGE & SILL OF HATCH, 6" DIA. GARBAGE OPENING WITH CONTAINER BELOW. 8" SPLASH BACK.
23. SINK :- PREWASH, 24" x 24" x 12" DEEP SPRAY NOZZLE
24. DISHWASHER :- MANUAL, SINGLE TANK WITH TIMER, WATER TEMPERATURE 180° F.
25. CLEAN DISH COUNTER :- 20 SQ. FT. DISH STORAGE BELOW.

WASHING (Cont).

GENERAL :- a. HOT WATER IN GENERAL 140° F. THE DISHWASHER REQUIRES A BOOSTER TO RAISE TEMPERATURE TO 180° F. FOR FINAL RINSE & AIR DRYING
b. A MOBILE TRUCK MAY BE PLACED IN THE CAFETERIA TO SUPPLEMENT THE DISH HATCH.

STORAGE.

26. REFRIGERATOR :- KITCHEN, 40 CUBIC FEET
27. REFRIGERATOR :- WALK-IN, 48 SQUARE FEET WITH 15" SHELVES & MEAT CUTTING BLOCK COUNTER.
28. DRY STORAGE :- 115 SQ. FT., 15" SHELVING AND 21" PLATFORM FOR CARTONS & BAGS.
29. RECEIVING AREA :- ABOUT 90 SQ. FT.
30. RECEIVING TABLE :- 2'-0" x 4'-0".
31. GARBAGE AREA :- ABOUT 36 SQ. FT. SPACE FOR CANS, HOT & COLD WATER AND A FLOOR DRAIN WITH FLOOR GRADED TO DRAIN.
32. TRUCK :- FOR RECEIVING & SHIPPING.
33. WASH ROOM :- FOR KITCHEN STAFF.
34. HAND SINK :- IN KITCHEN.

NOTES

FURNITURE & EQUIPMENT INDICATED THUS [▨] IS NOT USUALLY INCLUDED IN THE BUILDING CONTRACT.

ALL NECESSARY GAS, WATER, DRAINS, STEAM AND ELECTRIC CONNECTIONS SHOULD BE RUN TO EACH ITEM CONCERNED AND CAREFULLY LOCATED AND INSTALLED BY THE BUILDING CONTRACTOR.

ELECTRIC CONVENIENCE OUTLET FOR GENERAL USE.

0 1 2 3 4 5 6 7 8 9 10 11
SCALE IN FEET.

SUGGESTED LAYOUT OF CAFETERIA & KITCHEN

800 TO 1200 PUPIL SCHOOL

ONTARIO DEPARTMENT OF EDUCATION

SECONDARY EDUCATION BRANCH

SEPT. 1958. DRAWING No 25.

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(Supp.) refers to Supplements

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Suggestions for the layout and
construction of schools in
Ontario

Date Due

DEC - 8 1995

MAR 1 0 1995

FORM 109

FACILITY AREAS AND EQUIPMENT ALLOWANCES FOR SPECIAL VOCATIONAL GRANT PURPOSES

FACILITY	SQ. FT. AREAS MIN.	SQ. FT. AREAS MAX.	$ OF EQUIPMENT	TOTAL
Cafeteria	No. of Pups. x 10 / 3		Area x $4.00	
Classroom	700	750	1500.00	
Commercial				
(Business Machines (calculating)	900	950	13500.00	
(" " (office practice)	900	950	10000.00	
(" " (secretarial)	900	950	13500.00	
(Accountancy	900	950	4000.00	
(Typing	900	950	6500.00	
Gymnasium (45' x 70')	3150		4000.00	
" (70' x 90')	6300		8000.00	
Gymnasium/assembly (45' x 70')	3150		7000.00	
" " (70' x 90')	6300		10000.00	
Laboratory (standard)	800	900	11000.00	
" (industrial chemistry)	1000	1200	12000.00	
(ag. sc. or greenhouse)	1000	1500	6000.00	
library classrooms	900	1100	5000.00	
Shops				
Auto (14'-0" ceiling)	3000	3500	23000.00	
Building Con'n (14'-0" ceiling)	2000	2500	23500.00	
Carpentry Millwork (14'-0' ceiling)	2500	3000	23500.00	
Drafting (2nd fl.)	900	950	3500.00	
Electricity (2nd fl (14'-0" ceiling)	2000	2500	34000.00	
Electronics " "	1800	2000	18500.00	
Machine	2000	2500	40000.00	
Occupational training (boys)	2000	2500	6800.00	
" " (girls)(2nd. fl.)	1200	1300	6300.00	
Printing (Comp. & Presswork)	2500	3000	65000.00	
" (2nd shop)	2500	3000	40000.00	
Refrigeration (Air Conditioning)	2000	2500	13500.00	
Sheet Metal Warm-Air Heating	2000	2500	11500.00	
Welding	1600	2000	11000.00	

Other Approved Facilities:

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Department of Education,
March 12, 1963.

The following items on this and the attached sheets are applicable to this project:-

3. After the project has been given the tentative approval of the Ontario Municipal Board, your Board should engage the services of an architect to prepare sketch plans. When these are completed to the satisfaction of your Board, duplicate sets are to be submitted to this Department for approval before final plans are commenced. (see Item 7(a)(b).

4.(a) The sketch plans are to be accompanied by your architect's close estimate of the total cost of construction only. This estimate will be used to determine the amount of special vocational grant to be approved, and will be subject to very limited adjustment when the contract price is received.

(b) The amount of the architect's fee will be added by the Department to the architect's estimate of the cost of construction, to determine the total contract amount eligible for special vocational (and for legislative) grant purposes.

(c) The facilities approved for special vocational grant purposes by this Department, subject to approval by the Government of Canada, are listed in Item 2 of this letter. In addition to the information requested in Items 3 and 4(a) above, equipment lists are required in duplicate, with itemized costs, for each of the facilities approved for special vocational grant purposes.

A list of approvable equipment allowances is enclosed herewith for your information. All items of equipment costing $25.00 or more are to be listed separately. A lump sum of not more than 5% of the equipment allowance for each approved facility may be included for all items costing less than $25.00.

5. Procedure for payment to School Boards on account of construction and equipment of approved projects under the Technical and Vocational Training Agreement.

(a) Payments will be made by the Ontario Department of Education only after FINAL APPROVAL has been given by the Province of Ontario and the Government of Canada.

(b) Payment in connection with construction will be made on submission of the following documents:

i the original and one copy of architect's "Certificate for Payment", and/or

ii the original and one copy of architect's account for fees, and/or

iii the original and one copy of any other accounts in connection with the construction.

These documents should be certified on behalf of the Board by the Chairman or Secretary, the certificate to indicate that the accounts are correct and have not been previously paid.

(c) Payment for equipment and furniture will be made on submission of the original and one copy of invoices for the equipment, etc., concerned. The invoices should be submitted in lots totalling at least $10,000. One list in duplicate should accompany the invoices for each submission, showing the names of the suppliers and the amount of each invoice, and the list should be certified on behalf of the Board by the Chairman or Secretary to the effect that the accounts are correct and that the goods which they cover have been received.

(Paragraph 5 continued)

(d) Evidence of Payment. Subsequent to the receipt of payment by the Board and after the Board has disbursed the funds for the purpose for which the payment was made, a certificate on the letterhead of the Board in the following form should be submitted to the Superintendent, Business Administration, Department of Education.

> "This is to certify that the payment by the Province of Ontario to this Board of $.....
> for Project No.....has been used only for the purpose for which it was intended, and has been disbursed by this Board to the person(s), company(ies) or other creditor(s) in the amounts to which each was entitled."
>
> .....Board
> Date _____ by.....Chairman (Secretary)

(e) Control of Equipment and Furniture. The Provincial Auditor wishes to satisfy himself that every precaution is taken to ensure that the funds provided by Ontario and Canada are used for the purpose for which they are provided and that payment is made only for equipment and furniture used in the project which has been approved. We should, therefore, appreciate being advised of the steps taken by the Board to ensure that the invoices are correct, that the goods have been received, what record is kept of the goods received (inventories, etc.), and what steps are taken to prevent payment more than once of an invoice. It is assumed, of course, that Boards have already taken these steps. The procedure should be outlined in the letter to the Department, enclosing the first group of invoices for payment.

6. (a) Your Board should obtain a site of about

The site should be as centrally located as possible. Water and sewage disposal facilities have to comply with the requirements of the Department of Health. When a suitable site has been selected, your Board should request the Minister's approval to purchase. Your Board's letter is to be accompanied by a memorandum from the District or Municipal Inspector stating that he approved the site for secondary school purposes. The regular legislative grant only will apply on the expenditure approved for a site.

(b)

The site, as described, is considered to be satisfactory for its intended purpose, provided that the Department of Health approves water and sewage facilities. The regular legislative grant only will apply on the expenditure approved for a site.

(paragraph 6 continued)

(c)

The site, as described, is considered to be satisfactory for its intended purpose, provided that the Department of Health approved water and sewage facilities. Your Board's letter requesting the Minister's approval to purchase is to be accompanied by a memorandum from the District or Municipal Inspector stating that he approved the site for secondary school purposes. The regular legislative grant only will apply on the expenditure approved for a site.

(d) The area of the school site should be checked to assure that it is adequate to accommodate the addition to the building and the anticipated increase in enrolment. A report on the area of the site is requested. The regular legislative grant only will apply on the approved expenditure for an addition to the site.

7. (a) According to the Technical and Vocational Training Agreement entered into between the Government of Canada and the Province of Ontario, the Province can, on certain of its expenditures made before March 31, 1963, recover 75% from the Government of Canada. On this basis the Province has entered into arrangements to pay certain school boards 100% of the cost of constructing and equipping facilities for vocational training on the understanding that such facilities can be completed and paid for before March 31, 1963.

Because of the shortage of time it would appear that the project which your Board has requested the Department of Education to approve and assist cannot be completed and paid for before that date. Therefore, the Province will pay 100% of the approved costs of only that portion of the vocational project which has been completed and for which payment has been submitted before March 31, 1963. After that date, the Province will pay only 75% of the approved cost of the project remaining unpaid, and the Board must be prepared to assume payment of the balance of 25% without additional grant assistance.

(b) Your Board should consult the council(s) concerned to obtain their assurance that approval will be given for the issue of debentures if such financing becomes necessary, and the council of the municipality in which the school is to be (or is) situated should apply at once to the Ontario Municipal Board on behalf of your Board for approval of the construction of this school (or alteration or addition to the school) under section 64 of the Ontario Municipal Board Act. It should be noted that under that section it is not merely the issue of debentures that requires Municipal Board approval but actually the project must be approved if the cost, or any part of the cost, is to be raised in a future year or years by the issue of debentures, or otherwise.

(Paragraph 7 continued)

Tentative approval of the Ontario Municipal Board is required before an architect is retained to prepare plans and specifications. The Municipal Board will impose such conditions as it will deem appropriate before its final approval will be given.

In such final approval, when given the Ontario Municipal Board will probably reserve approval of the issue of debentures until the need and amount thereof have been determined.

It should be kept in mind that, according to the present interpretation of the law, the Municipal Board has no jurisdiction or power to approve any projects or the issue of debentures in respect thereof unless, before the exercise by the school board of any of its powers to proceed with the project, approval of the Municipal Board has first been obtained.

(d) After tentative approval has been received from the Ontario Municipal Board, the school board should retain the services of an architect to prepare sketch plans. When these are completed to the satisfaction of the school board they should be submitted to this Department before final plans are made.

8. The following approximate estimates are for the information of the School Board and the Ontario Municipal Board:

(a) The approximate estimate of the cost of the entire project including building contract, architect's fee, furniture and equipment is $..... An average unit cost of $..... per square foot was assumed in estimating the building contract.

(b) The MAXIMUM estimated amount the School Board might be required to pay for vocational facilities and their related areas would be 25% of $..... or $.....

(c) The NORMAL estimated amount the School Board might be required to pay for vocational facilities and their related areas may be taken roughly at $.....

9. Building Projects

(1) All materials and fixtures that will be permanent components of the building are to be produced or made in Canada, except under the following circumstances:

(a) when the price of such materials exceeds the price of imported materials by more than 10%, and

(b) the materials, or a suitable equivalent, are not made in Canada.

(a) The use of imported materials on grounds other than (a) and (b) will be submitted for approval by the Minister of Labour (Canada) if the total cost of all imported materials exceeds 20% of the total cost of materials used in this project.

(Paragraph 9 continued)

Equipment Projects

(1) Canadian-made equipment, tools and furniture are to be purchased except under the following circumstances:

(a) when the price of Canadian-made products exceeds the price of imported products by more than 10%;

(b) the products are not, in the knowledge of the Province, made in Canada; and

(c) the products although made in Canada are not, in the opinion of the Provincial Department of Education, suitable for the training required.

(2) The purchase of imported products on grounds other than (a), (b) and (c) above must be approved by the Minister of Labour (Canada), if the total cost of all imported products exceeds 20% of the total cost of the equipment, tools and furniture for the project.

10 (a) There shall be no discrimination in the selection of workers for employment on the project in respect to race, religious views or political affiliation, and the offices of the National Employment Service will be used in the recruitment of workers wherever practicable.

(b) Every effort will be made to continue work on the projects during the winter months.

11 If you have not already done so, will you please request the approval of the Minister to establish and maintain a vocational school. This is in accordance with the provisions of Part III of the Secondary Schools and Boards of Education Act, 1954.

Very truly yours,

W. R. Stewart,
Deputy Minister of Education.

T. A. 6.

Sketch Plan Approval

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The following items on this and the attached sheet are applicable to this project:

3. A set of the plans is to be furnished to the Ontario Fire Marshal, 204 Richmond Street West, Toronto, for approval respecting fire safety precautions.

4. Water supply and sewage disposal facilities must comply with the requirements of the Ontario Department of Health.

5. Your Board may now instruct its architect(s) to proceed with the preparation of final plans and specifications. When the final plans and specifications are completed to the satisfaction of your Board, one set of each is to be mailed to the Department and approval of the final plans given before tenders are invited.

6. (a) Your Board's attention is directed to our tentative approval letter for instructions on the whole or that portion of the building contract, furniture, equipment and architect's fees approved for special vocational grant purposes.

(b) Your Board should obtain assurance from the Councils concerned and the Council of the municipality in which the school is to be situated should obtain similar assurance from the Ontario Municipal Board that a debenture can be issued in an amount to meet the entire cost of the portion of the project not approved for special vocational grant purposes.

(c) Your Board should obtain assurance from the municipal council and the council in turn should obtain assurance from the Ontario Municipal Board that a debenture can be issued in an amount to meet the entire cost of the portion of the project not approved for special vocational grant purposes.

7. The facilities listed in Item 1 and their normal auxiliary areas are approved for special vocational grant purposes.

75% of the estimated normal vocational grant is as follows:

Building contract	$	
Architects' fee	$	
Furniture and equipment	$	$
Estimated amount to be debentured:		
Normal cost to Board	$	
25% of normal spec. voc. grant	$	$
Estimated cost of project		$

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7. (a) The following facilities and their related auxiliary areas are approved for special vocational grant purposes:

75% of the estimated normal vocational grant is as follows:

Building contract	$	
Architects' fee	$	
Furniture and equipment	$	$
Estimated amount to be debentured:		
Normal cost to Board	$	
25% of normal spec. voc. grant	$	$
Estimated cost of project		$

(b) The following facilities and their related auxiliary areas are approved for general legislative grant purposes:

Legislative grants will be on an amount up to but not in excess of $

This is the maximum amount upon which the Board's percentage for legislative grant will apply. You are reminded that this percentage is not guaranteed but may be varied by the grant regulations from year to year.

The special vocational grant and the amount of the general legislative grant on which the Board's percentage for grant applies are both subject to adjustment when final approval is given.

8. Building Projects

(1) All materials and fixtures that will be permanent components of the building are to be produced or made in Canada, except under the following circumstances:

(a) When the price of such materials exceeds the price of imported materials by more than 10%, and

(b) the materials, or a suitable equivalent, are not made in Canada.

(2) The use of imported materials on grounds other than (a) and (b) will be submitted for approval by the Minister of Labour (Canada) if the total cost of all imported materials exceeds 20% of the total cost of materials used in this project.

continued..

8 cont'd.

Equipment Projects

(1) Canadian-made equipment, tools and furniture are to be purchased except under the following circumstances:

(a) When the price of Canadian-made products exceeds the price of imported products by more than 10%;

(b) the products are not, in the knowledge of the province, made in Canada; and

(c) products although made in Canada are not, in the opinion of the Provincial Department of Education, suitable for the training required.

(2) The purchase of imported products on grounds other than (a), (b) and (c) above must be approved by the Minister of Labour (Canada) if the total cost of all imported products exceeds 20% of the total cost of the equipment, tools and furniture for the project.

Very truly yours,

W. R. Stewart,
Deputy Minister of Education.

S.P.A.4.

INSTITUTE FOR STUDIES IN EDUCATION LIBRARY

The following items on this and the attached sheet are applicable to this project:

2. The final plans, as submitted, which I understand meet with the approval of your Board, have been examined and it is noted that the facilities mentioned in the preceding item are included.

3. A set of the final plans and the specifications are to be furnished by your Board to the Ontario Fire Marshal, 204 Richmond Street West, Toronto, for approval respecting fire safety precautions.

4. Water supply and sewage disposal facilities must comply with the requirements of the Department of Health.

5. Your Board may invite tenders and select its contractor, but the building contract must not be awarded until Final Approval has been received. Subject to approval by the Government of Canada, Final Approval can be given if you will furnish the following information by letter:

Contract including contingency and Ontario Sales Tax - $.....

Amount for contingency included in the contract - $.....

(If lowest bid should not be accepted, give reasons and a complete list of bids received).

6. (a) Your Board's attention is directed to our tentative approval letter for instructions regarding payments on that portion of the building contract, furniture, equipment and architect's fees approved for special vocational grant purposes.

(b) The contract is not to be awarded until your Board has received this Department's final approval for general legislative grant purposes, and work must not commence until arrangements have been completed for the issue and sale of debentures in an amount to meet the total cost of that portion of the project not approved for special vocational grant purposes, including fees, furniture and equipment.

7. The facilities listed in Item 1 and their normal auxiliary areas are approved for special vocational grant purposes.

75% of the estimated normal vocational grant is as follows:

Building contract	$	
Architects' fee	$	
Furniture and equipment	$	$
Estimated amount to be debentured:		
Normal cost to Board	$	
25% of normal spec. voc. grant	$	$
Estimated cost of project		$

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7. (a) The following facilities and their related auxiliary areas are approved for special vocational grant purposes:

75% of the estimated normal vocational grant is as follows:

Building contract	$	
Architects' fee	$	
Furniture and equipment	$	
Estimated amount to be debentured:		
Normal cost to Board	$	
25% of normal spec. voc. grant	$	$
Estimated cost of project		$

(b) The following facilities and their related auxiliary areas are approved for general legislative grant purposes:

Legislative grants will be on an amount up to but not in excess of $

This is the maximum amount upon which the Board's percentage for legislative grant will apply. You are reminded that this percentage is not guaranteed but may be varied by the grant regulations from year to year.

The special vocational grant and the amount of the general legislative grant on which the Board's percentage for grant applies are both subject to adjustment when final approval is given.

8. (a) The Government of Canada requests that a representative of the Federal Department of Public Works be present when the tenders for this project are opened. It is your Board's responsibility to arrange for such representation by writing to the following official two weeks prior to the date on which tenders are to be opened:

Mr. W. Koropatnick,
District Office, Federal Department
of Public Works,
225 Jarvis Street,
TORONTO 2, Ontario.

(b) When writing to the Department of Education for Final Approval, you are requested to include the name of the Representative of the Federal Department of Public Works who was present, or was to be present, when the tenders were opened.

(c) Tenders are to be opened on the specified date irrespective of the presence or absence of the representative of the Federal Department of Public Works.

continued.....

9. Building Projects

(1) All materials and fixtures that will be permanent components of the building are to be produced or made in Canada, except under the following circumstances:

(a) When the price of such materials exceeds the price of imported materials by more than 10%, and

(b) the materials, or a suitable equivalent, are not made in Canada.

(2) The use of imported materials on grounds other than (a) and (b) will be submitted for approval by the Minister of Labour (Canada) if the total cost of all imported materials exceeds 20% of the total cost of materials used in this project.

Equipment Projects

(1) Canadian-made equipment, tools and furniture are to be purchased except under the following circumstances:

(a) When the price of Canadian-made products exceeds the price of imported products by more than 10%;

(b) the products are not, in the knowledge of the province, made in Canada; and

(c) products although made in Canada are not, in the opinion of the Provincial Department of Education, suitable for the training required.

(2) The purchase of imported products on grounds other than (a), (b) and (c) above must be approved by the Minister of Labour (Canada) if the total cost of all imported products exceeds 20% of the total cost of the equipment, tools and furniture for the project.

Very truly yours,

W. R. Stewart,
Deputy Minister of Education.

F.P.A.4

75% - 100% of the normal vocational grant is as follows:

Building contract	$	
Architects' fees	$	
Furniture and equipment	$	$
Amount to be debentured:		
Normal cost to Board	$	
25% of normal Spec. Voc. Grant	$	$
Cost of the project less Ontario Sales Tax		$

6(a) The following facilities and their related auxiliary areas are approved for special vocational grant purposes:

Contract including Ontario Sales Tax	- $
Amount eligible for Ontario Sales Tax rebate	- $
Contract less Ontario Sales Tax rebate	- $

75% - 100% of the normal vocational grant is as follows:

Building contract	$	
Architects' fees	$	
Furniture and equipment	$	$
Amount to be debentured:		
Normal cost to Board	$	
25% of normal spec.voc.grant	$	
Cost of the project less Ontario Sales Tax		$

(b) The following facilities and their related auxiliary areas are approved for general legislative grant purposes:

Legislative grant will be on an amount up to but not in excess of $.

This is the maximum amount upon which the Board's percentage for legislative grant will apply. You are reminded that this percentage is not guaranteed but may be varied by the grant regulations from year to year.

continued.....

7. (a) There shall be no discrimination in the selection of workers for employment on the project in respect to race, religious views or political affiliation, and the offices of the National Employment Service will be used in the recruitment of workers wherever practicable.

(b) Every effort will be made to continue work on the projects during the winter months.

8. Building Projects

(1) All materials and fixtures that will be permanent components of the building are to be produced or made in Canada, except under the following circumstances:

(a) When the price of such materials exceeds the price of imported materials by more than 10%, and

(b) the materials, or a suitable equivalent, are not made in Canada.

(2) The use of imported materials on grounds other than (a) and (b) will be submitted for approval by the Minister of Labour (Canada) if the total cost of all imported materials exceeds 20% of the total cost of materials used in this project.

Equipment Projects

(1) Canadian-made equipment, tools and furniture are to be purchased except under the following circumstances:

(a) When the price of Canadian-made products exceeds the price of imported products by more than 10%;

(b) the products are not, in the knowledge of the province, made in Canada; and

(c) products although made in Canada are not, in the opinion of the Provincial Department of Education, suitable for the training required.

(2) The purchase of imported products on grounds other than (a), (b), and (c) above must be approved by the Minister of Labour (Canada) if the total cost of all imported products exceeds 20% of the total cost of the equipment, tools and furniture for the project.

9. It is noted that Mr.....represented (did not represent) the Federal Department of Public Works at the opening of tenders for this project.

Very truly yours,

W. R. Stewart,
Deputy Minister of Education.

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